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Medical Education
As Discussed in "American Medicine"*

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The dominant inference from the American Foundation's report on "American Medicine" is that, in all attempts to get better medicine to more people, the root of the matter lies in medical education. It is this clear emphasis rather than any other circumstance that points to the suitability of extensive review of the report in this journal. This is the first of a series of three articles based upon the discussion of medical education in "American Medicine" and conveying concretely the manner in which leaders in medical science relate medical education to the problem of improving medical practice, improving the organization of medical care and meeting the medico-economic problems of better distribution and lower costs. Of the eleven chapters of the two-volume report, the third chapter, on medical education, not only covers more pages than any other chapter; it is also of pervasive importance because of its recognition of the continuous, if sometimes subtle, relation between medical education and every other aspect of medicine dealt with in the report.

The medical men themselves, who are the contributors and the real authors, are responsible for thus focussing the report upon medical education. The original letter of inquiry to the doctors did not mention medical education. The question put to the doctors was, in summarized form, about as follows: "Has your experience led you to believe that essential change in the present organization of medical care is indicated? If so, in what direction? If not, what minor changes or what evolutionary possibilities would you stress?"

To some of us, it will always be a source of encouragement that medical men, when they were thus confronted with a question that might easily have tempted them to wander off into abstract discussions of "medico-economic" theories, hewed, instead, to the line of their own experience. They did not deny the existence of the economic problems of better distribution of medical care and lower costs, but they implied that these problems could be dealt with effectively only in relation to a—to them—primary problem, the need to achieve constantly better medicine.

*"American Medicine: Expert Testimony Out of Court," published by the American Foundation, 565 Fifth Avenue, New York City; 2 volumes, 1430 pages; \$3.50 for the set.

This is the first of a series of three articles by Miss Lape on "Medical Education."

As an early paragraph in the chapter on medical education points out, the letter of inquiry brought back very promptly from a number of undoubted leaders of medical science throughout the country replies which said, in effect, the following:

"We think there is a problem. We do not consider that the resources of medical science are available in so great degree as they should be to nearly the number of the population that they should reach. But we do not think the problem can be defined in terms of cost and 'availability.' We do not think that you can 'distribute' what you haven't got.

"Medical care is not a commodity, and cannot be subject to the laws of commodity distribution. Adequate medical care is a changing, not a static, thing. It cannot be defined in quantitative terms. It cannot be defined in permanent terms. Medical science is developing rapidly; the amount and the intelligent application of new knowledge is, it is true, gradually increasing; but the field of the unknown is still vast, and the number of those fully competent to apply what is known is still very small. Even if it were possible to 'distribute' medical care, there is by no means a sufficient number of adequately trained men to supply it on a broad social base.

"Our general feeling is that so long as so much remains to be done in the way of training men that can give "adequate" medical care, and in training enough of them, and in making it impossible for the incompetent to offer what they cannot give, we cannot greatly interest ourselves in discussions of how medical care is to be distributed or what the cost of it to the ultimate consumer should be. These latter questions have great social and economic importance. They must be answered. But they must be answered in relation to the problem of developing medical care of high order and the problem of training and graduating and sending out to practice men that can supply it. . . .

"Of what profit will it be to establish community hospitals in *every* community if there are not thoroughly trained men to staff them? Establish them, of course, but establish them only in direct relation to the means of staffing them competently and to the means of maintaining the competence of the men with which they are staffed. Don't set up the shell unless the living organism is within it."

Impractical idealists? Perhaps. But those that write in this vein are among the most concrete and close-reasoning of the contributors. Neither their language nor their logic bears signs of confusion. Their position rests upon a very simple and vigorous conviction that no system, old or new, will work until there is greater competence. Until the schools have met the situation, as one man summarizes the case, organizing schemes will only make things worse. Those that are tackling the problems of public health and medical care with the specific objective of "distributing" it more widely, and making it cheaper, would do well to take into account, without loss of time, the sincere and tested views of many of the medical men that are responsible for the chapter on medical education in the American Foundation's report. Taking counsel with these will help to show the sincere advocates of better distribution and lower costs that, important as these factors are, they are still only a part of the problem. Taking counsel with these will help to elicit the truth that, as one

contributor puts it, however the present problem of organizing medical care is to be defined, it certainly cannot be defined as the need of making mediocre medical care available to a greater number of people.

The chief physician in a city hospital, a professor in an approved medical school, a member of the Association of American Physicians, expresses very well the point of view of the convinced group that holds that medical education, while it is not the whole problem, is at least the first line of attack:

"Controversy over the solution of this problem seems to be centered in three main fields, the economic, the social or political, and the educational.

"Of these three the educational is the most fundamentally important; at least, it is the one field in which we can immediately proceed to act, on the sound assumption that no system of administering *service de santé* can succeed unless the medical personnel is adequately trained. I believe we have at present the knowledge necessary to provide sound education for our medical men, and that we should devote ourselves to that purpose without too much consideration of the ultimate method of compensating these men for their service to society. . . .

"Any form of organization of medical service will fail to give better results unless the recruiting and training of personnel is highly selective for integrity, intelligence, and professional skill, which is developed on a foundation of good general education, designed to give social and biological perspective."

The main issue is neither what the dispenser gets for his services nor what the receiver is economically able to pay for it; the main issue, the determining consideration, is the welfare of the patient, his medical need and the quality of the medical care he gets.

SOME RESISTANCE TO THE IDEA THAT THE FUTURE OF AMERICAN MEDICINE RESTS WITH THE MEDICAL SCHOOLS

There is ample evidence that leaders of medical science throughout the country are in very general agreement with the implication of the American Foundation's report that the future of American medicine does lie in the medical schools. But there is also protest in some quarters: The editor of the *Journal of the American Medical Association*, for instance, in the issue of April 10, 1937, deprecates the "impression, which seems to evolve quite naturally from the report, that the future of medicine lies in the medical schools." He does not like the idea. He regrets that the report continually suggests "that many of our present evils would be corrected if the medical schools could be given supervision over standardization of hospitals, control over organized medical practice, and, in general, management of medical education and the distribution of medical service."

The Journal's editor feels that the real guardian of standards is and should be "organized medicine." In a curious way his manner of speaking suggests that the medical schools and organized medicine represent opposed influences. He asserts that organized medicine has been struggling to raise the standard of medical education during the past twenty-five years, during which

"it has had constantly to battle political, personal and proprietary interests in medical schools themselves.

"It should be obvious that the schools cannot be relied on to raise and to maintain suitable standards in medical education. (Italics are ours.)"

"The utter inability of medical schools in universities that have departments administering medical service to control even the standards of such service in their own schools is an indication of how futile it would be to depend on the medical schools to develop and maintain distribution of medical service for all the people in the future."

With many medical men, however, as suggested above, the tide of conviction is set entirely the other way. Many medical readers of "American Medicine" have testified that the main virtue of the report, to them, will always be its preoccupation with medical education, its insistence that the best in medical care is not yet good enough and that all efforts to distribute medical care more widely and lower its cost must be achieved only in connection with improving its quality, and under control of that principle; its focussing of attention upon the medical schools, admitting their imperfect present but envisaging the leadership of their potential future. Those medical scientists that see things in this perspective do not second Dr. Fishbein's editorial reservation. To his reproach that the report seems to imply that the medical schools are the central factor in the medicine of tomorrow, they say

"And why not? If not the schools, then what?"

A competent spokesman for this group is Dr. Houston of Texas, a former governor of the American College of Physicians who, in the July 11 issue of the New York Times Book Review, comments in the following vein on the charge that "American Medicine," after all, represents only the educational tradition in medicine, and must be discounted as largely the views of a "bunch of professors":

"An objection that the preponderant opinion is from the pens of educators and specialists is scarcely valid; a learned profession will not gladly hear rabble-rousing denunciation of brains in leadership."

As medical men now align themselves to face the solution of present problems, their primary loyalty must be to the integrity of medical science; guild interests come second. One of the deeper revelations of "American Medicine" is the evidence that many leading medical men profoundly believe this.

But there is not—or, rather, there should not be—issue or controversy between the interests of medical education and the interests of organized medicine. They are one.

COMPREHENSIVENESS YET INFORMALITY OF THE DISCUSSION

The discussion of medical education in "American Medicine" is informal and entirely modest. The 2200 doctors in their 5000 odd letters were discussing all subjects tentatively, speculatively, with entire freedom. They said what they think and believe and they did not set out to prove it by an assembly of doubtful facts or theoretical argument. They did not even assume expertness, although clearly this citation of experience and impression on the part of highly qualified men is not random observation but really expert testimony.

Although the discussion of medical education frankly does not aim at completeness, there are few aspects of medical education in this country that are not touched upon at some point. Most of them are not merely touched upon but thoroughly considered and illumined. An acknowledged leader in medical education, after a first reading of the report, said of it:

"Graduate medical education and the certification of specialists are the two fields that have held my special interest in the past twenty-five years. I thought I was familiar with all viewpoints, both in this country and abroad, but the survey has turned up points of view entirely new to me, some of which may have considerable significance."

There is no implication that this is the first time American medical education has received a competent critique. Most of the contributors do not fail to recognize the organized and continuous efforts that have been made by the Council on Medical Education and the Association of American Medical Colleges to keep medical education constantly under review and to improve it. Naturally enough, not all of the contributors are adequately informed as to what the Council and the Association have done. Occasionally a recommendation or suggestion, long familiar to experts, is made as if *de novo*. Nevertheless expert readers of the report reveal rather general agreement that "American Medicine" is at once the most comprehensive, the most revealing, the most constructive review of medical education thus far available. It is the synthetic offering of many consultants. Both by calling attention to work already under way under the auspices of the American Medical Association and the Association of American Medical Colleges, and also by tapping sources that have not been so freely available to these agencies, the report is recognized to have moved forward the frontiers and to have further illumined the field of needed activity.

WHO THE CONTRIBUTORS ARE

A happily futile attempt has been made in several quarters—not many—to create lack of confidence in the report on the part of the general practitioner on the ground that the contributors to the report are either highly paid specialists or salaried academics who naturally do not understand the situation of hard working general practitioners throughout the country.

The general practitioner, however, as the report's analysis of the contributors demonstrates, is well represented; 38 per cent of the contributors are general practitioners by their own description of themselves; and if to this 38 per cent are added those contributors whose practice is really in the general field, probably half the contributors, at least, could be said to belong in the field of general practice.

In any case it does not seem to us important to labor the point, either in proof or disproof. A man's ability to understand the problems of medical practice is not conditioned entirely by the nature of his own work. Even laboratory men—if they are men of imagination and wide human experience—may deeply understand the problems of general practice—and the letters of many of them, in this compilation, show that they do. And, conversely, some of the general

practitioners fail to demonstrate any abstract understanding of the concrete problems with which they daily deal. The comprehensiveness of the discussion of medical education in the report is due in large degree to the fact that all types of medical men contributed to it. Some speak as educators familiar with the problems of teaching and expert in the technique of instruction. Others view present day medical education—and picture the medical education of the future—in the light of the virtues and defects of their own medical education as revealed by experience. Many a medical man struggling to keep abreast of the advancing tide of medical science has very keen ideas as to what form of medical education would best enable the young men coming along to meet the challenge of daily practice more competently than the writer himself is able to do.

The contributions on medical education come from every state except two—Delaware and Washington. All the four year medical schools in the country except two (Meharry Medical College and the University of Vermont College of Medicine) are represented in this discussion either by the members of the faculty or by the deans. Both part time and full time professors are included but the full time men are in the minority. The contributions do not come consistently "from the top;" there are also many assistant and associate professors, instructors, lecturers, preceptors.

In the part time teaching group there are administrators of various types; there are members of the National Board of Medical Examiners; of the various specialty boards; included also are 22 officers or members of state examining boards.

RECOGNITION OF RAPID ADVANCES OF THE PAST TWENTY-FIVE YEARS

There is no failure to recognize how revolutionary have been the advances made in the nature and quality of medical education within the past generation. Some contributors, however, point out that there is very real danger that too enthusiastic recognition of these advances may result in a certain complacency. It has become a fashionable manner of speaking to maintain that this country has now the best medical education in the world, that it is no longer necessary or desirable for Americans to go abroad for medical study, that the United States has now achieved the position in medical education that was held by Europe twenty-five years ago, et cetera.

Discerning commentators regard the above as over-statement. They feel that the truth is that the United States at the present time has the best forms of medical education—and also, perhaps, the worst. A former president of the Association of American Medical Colleges observes:

"I am decidedly doubtful whether American medical education holds the position held by European centres twenty-five years ago. I should suspect that American medical education in the better schools is as good as medical education anywhere in the world, if not better."

What he omits—reference to all too numerous substandard and unevenly developed schools—has been concretely covered by other writers.

Certain men who have had notably intimate opportunity to observe the advances in medical education during the past twenty-five years, and who do not fail to register appreciation of these advances, nevertheless bring forward reservations which seem to merit a certain respect. A professor emeritus of the theory and practice of medicine in an approved medical school of demonstrated leadership reflects:

"If I had to make a choice between the old and the new I am almost inclined to think I would prefer the old fashioned homely care of a good doctor of forty years ago, to that of one of the highly trained and specialized young graduates of today. This may appear ridiculous, but it is somewhat the way I feel about it, in spite of the fact that I have been a teacher in three class A medical schools during that time."

There are other similar comments that can hardly be disposed of as merely the expectable protests of the rankly conservative. A southern surgeon writes:

"Not long ago I had opportunity to discuss the results of modern medical education with one of the acknowledged leaders of teaching. I asked him how the graduate of today compared with the one of his day or of his direct predecessor. After looking around to see that no one would hear him, he said, 'He is no better if as good'. He believes in stressing the basic essentials and not wasting the time of the student on the benches seeing the same thing demonstrated repeatedly."

If critics like the two above are not to be disposed of as utterly benighted, what is behind the reservations in their feeling?

To answer this question fully might require a dissertation. It may be possible, however, to single out two reasons for this lack of entire satisfaction with the modern educational tradition. One of the reasons is a belief that the very completeness and the comprehensive organization of present medical training, results in a kind of "spoon-feeding," a system that does too much for the student and does not require enough of him. The completeness of the system covers up defects in the candidates. One writer in this report points out that in the old days a medical man had little to work with except the clinical knowledge he hammered out of his own experience. He had to get it—and he did. A young man soon realized that if he did not industriously acquire that, he would have nothing. The products of modern medical education, on the other hand, as some of the older men put it, have in their varied information and their bags of technical tricks a quasi equipment which facile students can substitute for what they do not know.

A second reason for challenging, or at least for questioning, the value of the complex medical education of the present day is a certain feeling that the present system of modern medical education has not a clear objective. The schools themselves, it is maintained by some of the reservationists, cannot clearly define the product they hope to produce, and this inability on the part of the schools is reflected in the graduate. There are those who hold that the schools have yet to meet a challenging question—whether their aim is to produce general practitioners or specialists or, so to speak, general specialists (men with a smattering

of a number of specialties but no coordination of them) or what? In the old days a simpler system of education produced a simpler product. It was easy to test the product. Today it is difficult.

HAS THERE BEEN A NOTICEABLE BREAK IN THE
CONTINUITY OF IMPROVEMENT?

The Flexner report and associated efforts in the work of improving medical education are given full credit, but more than a few writers feel that there has been, of later years, an unjustifiable slowing down of some of the processes of improvement started by these influences. The impulse to close sub-standard schools, for instance, it is maintained, has been weakened of late years, and the policy of rigidly limiting numbers of students, effectively put into operation years ago, has been relaxed.

The grading of medical schools, it is clearly conveyed, is not something that can be done once for all; it is, rather, a continuous process, responsive year after year to a progressive raising of standards. The present grading is considered too inclusive; degrees of excellence, it is maintained, need to be more explicitly indicated than they are at present. Not uncommon is the tone of the comment offered by the president of a hospital in a town of 25,000 in the middle west, who says:

"I do not have the confidence in grading I used to have. I am of the opinion that fifteen or twenty of the schools should be closed."

In the same vein is the following from a gynecologist (FACS) in a county hospital in the south:

"It requires no particularly remarkable cerebellar development to realize that the medical colleges of certain southern states can in no way compare favorably with Harvard or P. and S. in New York in point of available teaching staff, clinical material, or collateral educational facilities, and yet they are all class A schools, and their graduates have the same standing in the eyes of the American Medical Association. These lesser schools should have a lower classification."

There is a clearly discernible feeling that the recent "growth" of a number of the great medical schools has been animated by economic rather than by educational expansion, and that the ends of medical science and medical education have not been served thereby. This point of view inspires the following writer, a member of the American Board of Pediatrics:

"The development of teaching equipment in the way of hospitals, laboratories and institutions for research paralleled definitely the mechanization of American life during the last quarter of a century. But there has been an over-emphasis on physical equipment, which has produced some of the same troubles that came with the over-development of industry.

"False ideas of competition led to the development of some institutions to a point far beyond practical needs and even to a degree at which physical development became a burden detrimental to the purpose for which they were established. All too many vacant or partially empty educational palaces are found today as the result of mistaking physical size and grandeur for a necessary attribute of quality. . . .

"Many institutions became in reality institutions of medical research, and the education of the student came to be only one of a number of functions. In order to maintain this elaborate set-up, more and more students were enrolled in the last decade for the sake of tuition fees, until now the number is again as high as when the commercial schools ruled the field."

THE PROBLEM OF CONTROLLING THE QUALITY OF THE STUDENT PERSONNEL

It is possible that some of the contributors to the report carry their discussion of this subject off into the shallows. So far as discussion of controlling the student personnel is concerned with raising the standards of medical practice, it is entirely in point. A few writers, however, are interested in limiting the number of medical schools and in particular the number of medical students, not because they aim at higher competence in medical men and higher standards in medical practice, but rather because they wish to limit economic competition. They would limit the number of students and thereby the number of doctors "so that the rest of us may make a living." Clear-eyed critics point out, however, the shallowness of the philosophy upon which this point of view is based.

The usual feeling is that the question as to whether there are too many or too few doctors cannot be answered on an arithmetical basis. So long as certain communities are over-supplied and certain broad agricultural stretches are under-supplied with medical men, it would be a bold person indeed who would feel ready to answer the question as to whether there are too many or too few doctors in the country. In the present confused state of our information and of medical organization, it is clearly no time to put restrictive measures into effect. A number of writers stress the point that better organization of medical care will call for more and not fewer medical men, especially if preventive medicine comes into its own. Even if there is an over-supply, a number of philosophers would still oppose restrictive measures. They feel that the principles of competition and survival of the fittest will constitute the effective adjusting influence. So long as distribution is poor, cuts are considered a poor method of meeting present problems.

There is in the report a major insistence upon the principle that the maintenance of higher standards must be the sole and the governing factor. The need to keep classes small to prevent over-taxing of training facilities "causing slipshod teaching and a lowering of standards" is, of course, a valid and imperative reason for cutting. But the weight of opinion is for cutting the quantity solely as a means of improving quality.

More than a few writers register concern because the number of graduates and the size of classes have seemed to be creeping up again after years of effective limitation. Deans cite the familiar figures that in June, 1934, there were 5,038 graduates and that this is the first time the number of graduates of medicine had exceeded 5,000 since 1905, when there were 5,606. What is really urged upon the medical schools individually—often merely by implication—is a review of their own facilities and faculties and an honest and scrupulous decision as to how

many students they can effectively handle. A significant bit of testimony in this direction is supplied by the dean of an approved school, as follows:

"This school was equipped to handle seventy-five students per class, but it was decided, after trial and error, to limit our admissions to forty-five per year."

A professor of an approved school in the east expresses a view shared by many of his colleagues when he says:

"I would cast my vote toward limiting educational opportunity in medicine to those best fitted to use it, without regard to estimates of the number of physicians needed."

He adds:

"Inherent in any sound educational policy is the selection of those who are educable. It must be obvious that only a limited number of individuals have the aptitude and skill plus the intellectual capacity requisite for the finest type of medical education. . . .

"It is reasonable to suppose that a much smaller number of practitioners than we have at present would be adequate if the average efficiency were greater. How many of the good men now are engaged in trying to correct the mistakes of their inadequately prepared colleagues?

"There are those, I know, who believe that a higher degree of educational selection would aggravate the present difficulties of distribution of physicians in remote and thinly populated districts. To these I would say that with radio and air transport no district will long remain remote or inaccessible.

"Furthermore I would state my belief that well trained physicians will go to rural areas, and that if equal numbers of rural practitioners and large city practitioners could be compared the rural men would assay just as high in professional efficiency and character as their city colleagues. Only good men can survive in rural practice, while our cities on the other hand furnish holes in which the rats of the profession make their nests."

His letter is typical of the views of those who stress better selection of students as a crucial factor in achieving a better quality of medical care.

Forcefully the point is made that one of the most confusing factors in the present situation is the acceptance of indifferently qualified students by medical schools because their tuition fees are needed to balance the budget. This consideration is taken into account in connection with the whole question of financing of medical schools in a later article in this brief series. For the moment, it is sufficient to stress the fact, clearly recognized in this report, that so long as schools make the need of the tuition fee, rather than the qualification of the student, the determining consideration, there can be no real control of the personnel in medical practice.

WAYS AND MEANS OF SELECTING STUDENTS

The weight of testimony shows that while a great deal of thought and effort has gone into the need of devising ways and means of selecting students effectively, the practical achievement to date is not very great. Most of the writers on this subject, however, believe that this is a reason, not for dropping, but for continuing the search.

If the schools accept the responsibility for choosing really qualified candidates, by what processes and what tests are they to make the right selection? It is agreed that the time has passed when letters from pastors, photographs, and certificates of excellent moral character, will be regarded as any indication that a young man is fitted for the study and practice of medicine.

Are there any satisfactory substitutes for these crude measurements? The answer seems to be that there may be such substitutes but that they have not as yet been discovered, and when they are discovered they will be found to be much more complex than the character of the average "aptitude" test would now indicate.

Some writers suggest that a good deal of light might be thrown upon the whole situation by a really competent study of the reasons why young men and women at the present time actually "go into medicine." It would not be an easy study. Perhaps, the young people themselves are the only persons who really know why they go into medicine—and often they themselves do not. With every intention to answer truthfully, can they themselves clearly define the motive that animates them? That a good many of the wrong motives are now operating is clearly a fairly general belief: boys go into medicine because their father was a doctor; because in the town in which they live medicine represents very well the respected liberal professions; because some doctors at least make a good deal of money; because the candidates have what is considered in their admiring circle a successful personality (which the layman still considers excellent equipment for the practice of one of the most difficult of the sciences); and for various other reasons.

There should, it is held, be more effective publicizing of the qualities and the qualifications actually needed for a medical career. "Personality," ability to gain the confidence of one's fellow-men, while it constitutes an interesting advantage, should not be allowed to usurp the place of the first and foremost qualification for a life to be spent in the study and application of medical science; the foremost qualification is marked intellectual capacity, capable of "taking" the sternest scientific training, and intellectual integrity.

The candidate should possess, it is submitted, scientific curiosity, the investigator's instinct. He should certainly be a worker. An officer of the American Dermatological Association observes:

"If we allow endocrinopathies, indolence, self-interest and laziness to enter medicine, they will turn up time and again in one form or another and in one or another relation between the doctor and his patient, just as they would in any other field, no matter what system of remuneration for service is generally adopted."

But in the case of the doctor the result of these qualities is more directly tragic than it is in other callings.

The candidate for medical education should have more than ordinary interest in the needs of his fellow-men. He should have the kind of sympathy that comes from cultivated human imagination. A former president of the American College of Physicians puts it thus:

"Every medical student should be made to understand that his life is to be more or less unselfish. He has a service to render, as well as a service to sell."

And, certainly, there is need to understand that an element of public service will always be a part of the doctor's work, and that the practice of medicine will never compare favorably in the matter of money making with other "businesses" or professions where the element of public service is either lacking or less direct.

A number of writers feel that the qualification of the medical man is so evasive and so subtle that attempts should be made to get "men with the right background." Others view apprehensively any concern with "background" and suspect obvious falsity in assumptions that men cannot rise above the cultural level of their parents.

There is a well defined feeling in some quarters that the standard of personal qualification has been lowered by the extent to which the children of the newer immigration have in recent years been going into medicine. It is not charged that many of these are not intelligent and competent, but the view is expressed that they do tend rather more than older Americans to regard the medical profession as a calling in which one is as likely to make money as he is in any other "business." What is complained of is a rather subtle disturbance of tradition and standard. Illustrative of this view is the following from a professor in an approved medical school:

"I have the impression, but it may be erroneous, that the type of individual who is going into medicine at the present time, at any rate in this part of the world, is different from the type of a generation ago. In the northeast Atlantic region there has been a tremendous increase in population through immigration, and the children of these immigrants are many of them trying to get into the professions, particularly law and medicine. This is notably true of the Jews, and also true of the Italians, and perhaps to a lesser extent of the Irish.

"The situation here is quite different from the situation in European countries, where the medical profession is much more likely to be drawn from a definite stratum of society which has pretty clear-cut ideals and points of view. The difficulty with many of these children of foreign immigrants is not that they are unintelligent, but that their ethical viewpoints are much lower than those expected of a physician. One cannot, in my opinion, change these viewpoints in the medical school. They are learned in the home and they begin to penetrate at a very early age.

"While I cannot pretend that there are not native Americans in the medical profession who are guilty of unethical conduct, the majority of shyster physicians, if I may apply a term usually applied to the legal profession, are of foreign parentage. Just how much effect this has on the cost of medical care is difficult to estimate, but it does have an effect. These men are apt to form little cliques, they do unnecessary operations, they make unnecessary visits and, in a word, they make a racket out of a legitimate profession."

There are other views emphasizing what the writers consider "unfortunate backgrounds for medicine" in the more recent immigration.

Against this view is to be balanced the feeling on the part of some writers that the cause of "quality" in medicine cannot be served by artificial restriction applied to students because of "background." It is pointed out that no one can

estimate the degree to which a given individual may rise above his surroundings and ultimately dominate his background. The point is made that whatever principles of selection are devised should be applicable in the same way to all candidates. Discrimination, it is submitted, must be on the basis of the qualities of the individual and not of the qualities—real or assumed—of the race. We cannot, it is pointed out, adopt a doctrine of predestination. A member of the American Psychiatric Association, FACP, comments in this connection:

"I have fought this question out with three of the large universities of this country. . . . It is not possible for any human being to say with any degree of finality in the average run of people what a man of twenty years of age will do or will have done by the time he is fifty."

Certain writers who have had experience with various forms of testing "aptitude" have reached the conclusion that scholarship is the main and the only dependable qualification. Others, however, warn against dependence upon academic tests which they feel can often be easily negotiated by facile intelligences which in reality are little capable of pondering and assimilating:

"Brilliant students are frequently unstable and high grades are often a poor index of the individual. Many of these high graders are not thinkers-through, and have photostatic or parrot memories, rather than original minds."

The danger of over-stressing "brains," however, is generally admitted to be less than the danger of over-stressing "personality."

A good many contributors frankly throw up their hands at the whole problem involved in selection. One dean writes that he has been working on the problem for the last fifteen years "and I am still at sea as to the best way of selecting candidates." He, and a number of his colleagues with him, however, are not prepared to give up the struggle.

Others are frank to say they would rather give it up than run the danger of trying to test things that cannot be tested. This nihilist school is aptly exemplified by the following:

"The thought of devising new tests to determine who shall study medicine is both ambitious and amusing. Recent limitations of entrance based on 'imponderables' and accompanied in some schools by the added requirement of submitting a photograph if the applicant be a non-resident seem strangely unfair. All too often they fester with religious and racial prejudices. The photograph exhibit suggests scientific acceptance of phrenology."

The more constructive, or at least the more hopeful group, is exemplified by the following, from the dean of an approved medical school in the east, who sets forth in some detail a procedure which his school has tried and which, he modestly says, he and his associates believe to be resulting in "at least fewer failures:"

"This school has made a very strong effort to pick out the best possible material for training as physicians, having the belief that if you pick out good material you will almost certainly turn out a good doctor and if you pick out poor material you cannot do much with it in any case. The Admissions Committee consists of four professors, of anatomy, chemistry, medicine and pathology, all heads of departments and men of considerable experience in teaching medical students.

"The student application carries, of course, the complete collegiate record. The student is requested to send with that application a letter giving a review of his interests in college and his reasons for wishing entrance to this medical school. We write to his science teachers for confidential letters as to his promise for development in medicine, and gradually we become acquainted with the science teachers whose judgment appears to be good; their recommendations, then, are given much weight. We have the student aptitude test, which we do not consider of much value, but at times it is helpful.

"Most important of all, with few exceptions students are requested to come on for an interview. This, of course, cannot apply to students west of the Mississippi or south of Maryland, and in such instances we have physicians whose judgment we trust; the students are asked to arrange for interviews with these men, and we get confidential letters as to personality from the physicians.

"With all this information on each student, we are gradually coming to feel some confidence in our decision as to A and B students, and these we accept without hesitation. Our difficulties come in the middle group. The poor group, of course, is refused. By an A or B student we do not mean that he may have an A or B college record. He usually does, but if a student has worked his way through college or has done a great deal of extra work in athletics, and his teachers say that he could do better work but for these outside interests, we rate him as B or A student on a C college record.

"Believing that the personality is of fundamental importance for a physician, we try to have leisurely interviews with these candidates and find out in that way something about each man's personality. Each member of the Admissions Committee sees every student who comes on for interview. Judging from results, we are getting a better quality of student and having fewer failures during the medical course. Although this type of student evaluation is time-consuming, I believe thoroughly that it is very much worth while."

There is increasingly less dependence upon "devices," and more upon complex and subtler procedures, aiming at better selection. Among the apparently more respected of such procedures are the personal interview, carefully planned and carried through; and above all the working out of a real connection (suggested above) with the instructors of students in the premedical years, especially instructors in the sciences.

WEEDING OUT THE UNFIT IN MEDICAL SCHOOL

There are those who feel that selecting students at the time of entrance will, at best, remain always a speculative procedure, but that it is possible—and imperative—for medical schools to "weed them out" after they have been admitted. The medical schools, it is maintained, may not be responsible for having clairvoyant capacity to estimate embryonic worth; but they are responsible for not launching ill-qualified men into medical practice.

Here, again, there are curious differences of opinion. While all agree that weeding out should certainly be accomplished at some point, they differ as to what that point should be. Some writers are sure that the end of the first semester is the accepted time. Others prefer the end of the freshman year. Others reason that students often undergo a profound metamorphosis during their first year of medical training and that the end of the sophomore year,

when they have had opportunity to adjust themselves to their own new conceptions, is a much fairer time for the application of sternly exclusive measures.

Practical men, however, observe that by the end of the sophomore year the student has acquired a vested interest, so to speak, in medical education. They argue that the candidate and his family are justified in feeling that the school's retaining the student to the end of the sophomore year seems to imply satisfaction with his performance and that grave injustice is done if the executioner's axe falls thus late.

Certain frank critics feel that the only reason why the weeding out process cannot be applied satisfactorily at the end of the freshman year or at the end of the first semester, lies in the negligence of medical faculties. A more conscious or better correlated effort on the part of medical faculties, they submit, would result in clear knowledge of any student's incapacity before the end of the freshman year.

One group of writers at least is so impressed with the number of the wrong people now in the practice of medicine, that they would apply a rigid policy of exclusion at any point, early or late, when deficiency becomes evident—on graduation day if need be. A medical faculty, they feel, may not be able to prevent young men and women from studying medicine, but they are responsible—to society and to their profession—for seeing that the unfit do not enter medical practice.

There is a considerable amount of reference to various expedients and experiments used in this or that institution to achieve selection and to rule out the unqualified. Illustrative of such expedients is, for instance, the practice in one medical school of referring doubtful cases at the end of the sophomore year to a committee of clinicians, whose judgment on the individual's right to proceed with his medical education is to be final. Others would regard the above expedient as pure fascism. These writers are a part of the group that feel that the schools must permit academically qualified persons to be graduated. They would pass on to the registration boards the chore of ruling out men incompetent for medical practice.

CAN ANYTHING BE DONE ABOUT THE DOCTOR'S LATE START?

This familiar question is agitated in the report and the question seems to be answered in the negative. The doctor's late start is admitted to be an economic and personal disadvantage, but an advantage to the standards of medical practice. There are suggestions for shortening the training period, but most of them are offered half-heartedly. With the rapid expansion of medical science, most of the contributors feel that the medical student needs continually more, and not less, time for preparation and that shortening the medical course is a proposal not only impractical, but dangerous.

There is, however, a feeling that after the clinical years have been reached, the possibility of earning is not incompatible with the requirements of further education. And there is more than a little support for the position that interns should certainly be paid.

SHOULD THE MAJOR EMPHASIS IN PREMEDICAL TRAINING BE ON THE
HUMANITIES OR ON SCIENCE?

Answers to this familiar question are somewhat controlled here as elsewhere by temperamental differences. The lines are rather evenly drawn. A number of men who obviously feel that their own development in the humanities has been deficient, stress the need of emphasizing the humanities in the premedical course. By and large, however, it may be fairly said that the contributors recognize that the medical career is, first of all, a scientific career and that there can be no dissipation of interest and effort. Every scientist needs the humanities for artistic and profitable living, but, it is argued, the medical man should get the humanities by extramural studies and other than academic contacts, rather than through a curriculum designed to prepare him for entering upon the study of medical science. A group of reasonable writers suggests that the question is too sharply put, and that the amount of science any given boy has in his premedical training may well depend upon the character and temperament of the particular boy, and also upon the amount of science he has already had in high school or in secondary school. In other words, the amount of purely scientific content might well be totalled separately for each individual.

Typical of those who stress the importance of making no sacrifice of scientific emphasis, is the following, from a clinical professor of obstetrics in an approved school in the south:

"Recent progress in medicine is being made by scientific measures, and therefore, a stress in that direction should be proper in the premedical course. The student should get all possible laboratory knowledge and experience in the school for, unless he devotes himself to such a field as a specialty, later on he will have little opportunity to acquire it."

Also the following from an assistant professor of medicine in an approved medical school in the east:

"I would emphasize the sciences in the premedical courses. A true knowledge of the humanities will come to the doctor as his career unfolds itself, in the course of time. . . . The premedical course is as important as that which comes later."

Rather refreshing in this, as in the discussion of other aspects of medical education in this chapter, is the group that consistently maintains that the discussion of these stock questions is in a manner sterile, and that in all these matters the needs of the individual may well dictate the particular emphasis.

SHOULD MEDICAL SCHOOLS CONTEMPLATE SEVERAL
TYPES OF GRADUATES?

Can the same form of training adequately produce a general practitioner in a rural region; an administrator in public health work; a specialist; a bacteriologist; a pathologist; an X-ray expert?

There is a sharp difference of opinion on this question. Various writers propose that it has now become necessary to differentiate medical training with direct regard to the use that is to be made of it. Other writers sharply repudiate

this philosophy and maintain that the differentiation belongs to postgraduate study and that a basic training of practically the same kind is a necessary prerequisite in all forms of medical practice.

Present difficulties, it is argued, are in some degree due to the fact that medical schools are not clear as to their own objective. They are constantly making medical training more extensive, more intensive, more complex; but how would they define their objective, how describe the product they aim to turn out?

One group feels that there should be at least two types of medical graduate and that the medical course should be differentiated in direct relation to these two. There is the greatest difference, this group maintains, between the type of graduate who is interested in advancing the science of medicine by an impersonal study of disease and the type of graduate who is interested in applying his curative knowledge to sick individuals. Other writers challenge this position and maintain that the research or the preventive medicine man certainly needs the clinical experience organized for the man that is to be a practitioner, and that the practitioner, by the same token, cannot really achieve competence beyond pill vending or emergency repair unless he has received precisely that rigid training in research and in the objective study of disease proposed for his research colleague.

Some writers think that four types are in order. The dean of an approved school, for instance, writes:

"The medical schools must be prepared to train and establish four types of graduates:

"*First*, a large group of men whose temperaments and aptitudes fit them to administer all available medical services to individuals and to families. Such graduates must have learned to know their own capacities and their own limitations; must have been sensitized to consider community preventive measures and personal and family hygiene, as equally important with diagnostic procedures and therapeutic management.

"Their training should leave them able to administer the great variety of technical aids that modern medicine provides for the physical, psychic and economic advantage of the individual, and for the social advantage of the community. It is essential that they should be competent to bring effectively and economically to patients all the usable values offered by the nurse, the public health nurse, the pharmacist, the physiotherapist, the psychotherapist, and the laboratory technician."

The men in this group must also know, the writer adds, how to bring all needed specialist service to their patients at just the right time.

"A physician so trained, knowing his patient's needs, knowing too, his own limitations as a physician, having integrity, sufficient to secure him against undertaking tasks beyond his competence, will know how to act as a friendly health adviser to individuals and families and to be a cooperative colleague to the health officers of the community. Without such a man, scholarly, social-minded, and of high civic integrity, no plan that can be devised for the distribution of modern medical service to the modern community can have any hope of success.

"*Second*, every medical school must be prepared to cooperate with public health schools in order to develop physicians whose temperaments and abilities

attract them to the field of public health. These must be men who can clearly see and understand and be able to use the social organization to accomplish all community health tasks that can best be achieved collectively. The important thing is that such men be trained first as physicians, in order that they may be better able to understand the philosophy of practice, and to cooperate with the great body of practitioners whose preventive and curative work is essential to the protection of community health, yet is directly concerned only with the individual and the family.

"The *third* group that the medical school must concern itself with training is the specialist. . . . Too large a proportion of medical men are specializing in narrow fields, many of them without sufficient training and experience, lured by the excessive fees often paid to specialists. So long as patients are encouraged by such a state of affairs to diagnose their own ills and to seek specialists' aid without competent advice from a personal physician who knows all the circumstances surrounding them and their sickness, so long will it be impossible for the community to get the best possible medical service for itself and for its individuals from either practitioners or specialists. Increasingly the best medical schools are combatting this anti-social trend.

"*Fourth*, medical education must provide a fourth group of men trained particularly for investigation and research—for the discovery of new knowledge. Like the health officers and the specialists the student life of these men should be in close companionship with the groups that are to be practitioners, health officers, and specialists."

In sharp contrast to the above point of view emphasizing the reasonableness of differentiating medical education with reference to the use to be made of it, and therefore producing more than one type of graduate, is the view of those writers who believe that no differentiation is in order and that the solution is rather to integrate than to separate the types—and to give all the same basic training. The needed integration is recognized to be a subtle process, in which the medical teaching faculty, with their varied qualifications, techniques and outlooks, are an essential part. With this in mind, an associate professor of medicine at Harvard concludes an interesting discussion of the need of integration rather than separation, thus:

"All I have tried to say, then, is that for the best cultivation of clinical medicine of today, the combined activities of men with various qualifications are essential. University clinics cannot be conducted according to rigid patterns. In addition to all aspects of the science of medicine, and of man as a complete individual, the representation of the principles of the practice of medicine is a worthy university discipline.

"These functions of clinical medicine must be cultivated side by side for mutual benefit; otherwise, the primary purpose of the clinic fails. It is the intellect which must dominate technique; and the development of scholars at work in the university clinic will help to improve the care of the sick."

The former dean of an approved medical school who favors "controlled experiments" as a means of illuminating many of the problems involved in the organization of medical care, and who thinks these controlled experiments might well be extended to the medical schools "which have such an important rôle in the direction of the subsequent work of their graduates," while duly

recognizing the need of taking difference of function into account, also favors integration as against separation of the training of investigators and of practitioners:

"I do not believe that it is practicable or desirable to divide such institutions into definite groups for the training of investigators as distinct from practitioners, and I fear that none of the existing schools is properly equipped to deal with individual and group health in the larger implications of this term.

"In order to accomplish this properly the practice of medicine in the older sense, and including preventive as well as reparative medicine, must have representation through a large faculty that embraces all of these activities and minimizes the arbitrary divisions and rivalries that have arisen in the present complex organization of health groups.

"Moreover, the student is activated to emulate his instructor and will have no opportunity to recognize need and to participate in those phases of health programs that are not properly represented to him during his undergraduate period."

NO "DOUBLE STANDARD" AS TO QUALITY

Intolerable to most medical men apparently is the idea of two grades of medical care, one the best that is known, the other a run of the mill variety; one for the financially competent, the other for those that cannot pay what good care is worth; one for the metropolis, one for the far agricultural stretches.

In other words there is to be no "double standard" in medicine.

It is recognized that there are communities and wide prairies and mountainous reaches in which doctors are not "available" and which have no appeal to men expecting to earn their living by the practice of medicine. But the solution of these economic problems, whatever it is, is not that the medical schools, in addition to their "regular" course, shall develop a second type of medical education, less expensive, less exacting in its scientific requirements, and more "practical" in its nature, designed for men expected to become general practitioners in rural communities. A professor of physiology in an approved medical school in the middle west sums up this point of view as follows:

"In this suggestion there is the direct implication that the medical school is failing in its primary and most important duty—that of producing physicians to serve the community. . . .

"The argument for the inferior medical schools rests, perhaps unconsciously, on the assumption that medical practice is fixed and immutable. . . .

"Unless the solution is to be found in a return to cheaper medical education, with a possibly cheaper medical practice—the medical school must be left to its duty of improving, rather than cheapening, medical education, and the problem of providing medical service for the rural community and for the great portion of the population with restricted means must be solved in some other way."

After all, the criterion, in medical education as in medical practice, is—the welfare of the patient. The objective of medical education is best defined as enabling graduates to provide a medical care that has continuity and unity, that is concerned with the individual as a whole and with his health as well as his sickness. Such a conception does not admit of "grades" of medical care.

Instruction Given to Medical Students Regarding the Use of the Medical Library. Results of Eight Years' Practical Experience*

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The student entering a modern medical school is soon confronted with problems which can only be solved by consulting the source literature of medicine. This, of course, necessitates the use of the medical library. The student is often at first confused by the profusion of material at his disposal, and is uncertain as to the best method of obtaining literature on the subject under consideration.

Many librarians have realized that the students need assistance in this respect, and have been trying to meet this need in various ways, but the introduction of formal instruction in the use of medical libraries is a comparatively recent development. That such instruction is of interest in England was editorially commented on in a recent issue of the *Lancet*.¹ This editorial discussed a symposium held to consider the possibilities of library instruction for university and research students. The advisability of inaugurating such a service in medical school libraries was emphasized in the editorial. The London School of Tropical Medicine and Hygiene, a postgraduate institution, offers instruction in the use of the library by means of a lecture course, but the librarian states² that for students in several subjects the course must be curtailed owing to the limited amount of free time at their disposal.

Miss Elizabeth Runge's interesting paper presented at one of the meetings of the Medical Library Association, entitled "Teaching the Use of the Library,"³ brought out the fact that there is an active interest in the subject in this country. While some medical schools have begun to introduce methods of instruction in the use of the library, at present this is far from being a universal practice. Therefore, the following brief outline of the course being given at the Vanderbilt University School of Medicine is presented with the idea in mind that details regarding the attempts on the part of medical librarians to offer instruction to students might be of interest to others. Any suggestions from other librarians who are giving this type of instruction will be welcomed.

In 1929, at the request of the students themselves, instruction in the use of the library was introduced in the following way: During the first trimester, the freshmen, in groups of ten, are requested to go to the library for one afternoon's work. They are met by the librarian, who shows them the practical arrange-

*Method of instruction in the use of the medical library as given during the first trimester to students of the first year class at the Vanderbilt University School of Medicine.

1. *Lancet* (Lond.), 2:754, 1936.

2. *Lancet* (Lond.), 2:826, 1936.

3. *Bull. Med. Library Assoc.*, 20:14-15, 1931-32.

ment of the library stacks and reading rooms. They are then taken to the librarian's office for a round table discussion. The librarian outlines briefly the rules of the library, discusses the value of periodicals and the importance of avoiding loss of volumes, and endeavors to stimulate the interest of the student in the library as a cooperative concern which is run for his own as well as others' mutual benefit. The monetary value of scientific books is brought out, and the students are shown what a tremendous investment of medical school funds the library represents, as well as the difficulties involved in building up and maintaining an adequate collection. The necessity of careful usage and avoidance of loss of volumes, almost all of which are expensive, and some irreplaceable, is stressed. In this regard, it has been a pleasure to note how responsive and interested the students become, and how really cooperative they are during their attendance in the medical school. This personal relation established early with the new student, which aids in developing his enthusiastic interest and pride in the library, is a very large factor in obtaining cooperation and a good morale. It is also an assistance in preventing the loss of books. Even with an open shelf system and a yearly circulation of more than 34,000 volumes, the loss of bound volumes has been an average of less than five volumes per year.

The scheme of classification in use in the library is discussed, and various types of catalog cards are demonstrated and their significance pointed out; i.e., analytics, subject entries, joint authors, etc. Then the use of the various medical bibliographic indices is taken up and their use as a key to the periodical literature is discussed. This is demonstrated practically by following some selected subject through a volume of each of the various series of the *Index Medicus*, *Quarterly Cumulative Index Medicus*, and the *Index Catalogue of the Library of the Surgeon-General's Office*. Also, the subject selected for illustration is followed in various review and abstract journals and reference works, showing the different possible approaches to the same subject. The students are encouraged to ask questions, and there is a general discussion of bibliographic problems.

Each student is given a mimeographed outline (Appendix A) containing the history of each of the bibliographic indices discussed, and a list of the abstract and review journals, and a few of the standard reference works available in the library. It is in no sense to be regarded as a comprehensive or inclusive list, but simply represents some of the material available for use in this particular library.

The students are also given an assignment in practical work (Appendix B). Each of the ten students is given a different subject to look up, and must turn in a written reference taken from some volume of each of the series of the various bibliographic indices. The subjects assigned in the *Index Catalogue of the Library of the Surgeon-General's Office* are so arranged that no two students are given subjects in the same part of the alphabet, in this way distributing the use of the volumes over the whole series. This work is done in the reading room, and the librarian remains throughout the afternoon to answer questions and give assistance when necessary.

Instruction has been confined to one afternoon's work, owing to the limited time at the disposal of first year students. The students have seemed interested in the course, and there has been almost 100 per cent attendance.

A letter is sent to the head of each department during the first trimester, asking if any special students, technicians or workers in the laboratories, would like to avail themselves of instruction in the use of the library, and if so, to send their names to the registrar. The librarian then repeats the round table talks until all such individuals have been given a chance to take the course. This opportunity is also extended to any students who have transferred from other schools to upper classes at Vanderbilt, the round table conference being given at an hour which suits the needs of each particular group. The librarian also meets each new group of postgraduate students immediately after they register for courses, and gives them an hour's lecture on the library facilities, as well as a practical explanation of the arrangement of the library itself. In a similar way, the librarian also meets with all freshman students and all new graduate students of the School of Nursing.

The introduction to the use of the library is supplemented throughout the student's four year course by library work assigned to him as part of his studies in the various departments of the medical school.

The Department of Anatomy requires the first year students to give written reports with bibliographies on various subjects which are sometimes assigned by the staff and sometimes selected by the students themselves, and the material for which must be obtained by the students from periodicals, not from textbooks.

During the first year, the Department of Physiology assigns each student a subject on which he has to write a paper, the material for which must be obtained from the periodical literature, including work in at least one foreign language. Later a second topic is assigned on which the literature is worked up and the student then stands an examination on what he has read. These papers are considered in rating for final grades.

During the second year, the Department of Pharmacology assigns a definite tissue to each student for study, and asks him to look up references on the experimental work proving the action of some chemical substance on this tissue, and the students are expected to turn in a written report of their findings with a bibliography.

The Department of Biochemistry conducts a seminar for second year students once a week for two hours. The first meeting is given over to a discussion of the literature of biochemistry and related subjects, and the various types of journals, reference works, abstract and review journals, monographs and texts in which these subjects are taken up. A problem is assigned for discussion at each of the subsequent meetings, and the students look up different phases of the problem and get their own bibliographies.

The Departments of Medicine and Surgery give the students bibliographic data of an historical and practical nature regarding the various diseases demonstrated during a given clinic, which they are expected to follow up in the

library, later turning in written reports. The students are also required, during the medical trimester of their third year, and while they are clinical clerks on the wards, to write papers of about two thousand words. The subjects of these papers are selected in relation to the clinics on cases. In Surgery 10, a senior elective course in experimental surgery, the seminar principle is followed to cover parallel reading. Each week a student is assigned one or two articles of fundamental bearing on the principles to be demonstrated by experiment the following week. He is asked to read these and such related articles in the library as seem to him to have an important bearing on the subject and to present a ten minute summary to the class before the next week's experiment.

The Department of Preventive Medicine requires the fourth year students to read current literature on the subject of each lecture, and there is a seminar once each month when students are required to present discussions based on observations in the field and a review of literature bearing on the subject assigned. Postgraduate students in Public Health are also required to write papers, using periodical literature as the basis of their reports.

The students in the Vanderbilt University Medical School are therefore continuously in contact with the periodical literature during their medical work and are also actively using the indices and source material available in the library. Their apparent appreciation and cooperation have more than repaid the librarian for the effort involved in continuing these round table talks.

APPENDIX A

OUTLINE GIVEN FIRST YEAR STUDENTS REGARDING BIBLIOGRAPHIC INDICES AND REFERENCE WORKS AVAILABLE IN THE VANDERBILT UNIVERSITY MEDICAL LIBRARY

The first indices of medical literature were those of Haller, comprising botany, anatomy, surgery and internal medicine 1771-1778. His eight volume treatise on physiology also comprises much of interest in regard to periodical literature.

Adolph Peter Callisen, a native of Denmark and an army surgeon, compiled a monumental work consisting of an author-catalogue of the medical literature from 1780-1844 called "*Medicinisches Schriftsteller-Lexicon*" in thirty-three volumes. Volumes 23-25 contain a catalogue of scientific periodicals of interest to medicine, and the contents of some of the more important journals are indexed by volume. Dr. Garrison gives the number of items listed by Callisen as 99,001. These early bibliographies are invaluable, but unfortunately, due to their rareness and high price, they are seldom found except in the largest of the American medical libraries.

There are four modern indices of medical literature available at Vanderbilt: the *Index Medicus*, the *Quarterly Cumulative Index Medicus*, the *Index Catalogue of the Library of the Surgeon-General's Office*, and the *Catalogue of Scientific Papers of the Royal Society, 1800-1900*.

1. *INDEX MEDICUS* (edited by John Shaw Billings and Robert Fletcher, later by Fielding H. Garrison, all three connected with the Library of the Surgeon-General's Office at Washington). This index consists of 3 series: 1st, from 1879-1899 (volumes for 1900-1902 were not published in America, this period was covered rather inadequately by a French edition which is at present extremely rare); the 2nd series, 1903-1920; the 3rd from 1921-1926. It combined in 1926 with the *Quarterly Cumulative Index*.

The arrangement of the first and second series is similar. Each volume covers the period of one year and contains an alphabetical authors' index and alphabetical subject index at the back of the volume. A given subject is repeated in 12 different places in each volume because they are arranged separately for each number and 12 numbers were published each year. In 1921 (Series 3), the arrangement changed. The volumes still have an authors' index, but no subject index. The arrangement of subjects throughout the volume is strictly alphabetical and there are only 4 numbers in each volume instead of 12, the alphabetical arrangement being repeated 4 times.

The Index Medicus covers the most important publications, both books and articles in periodicals, in biology, anatomy, embryology, physiology, medical sociology, medicine, surgery and allied subjects.

2. QUARTERLY CUMULATIVE INDEX MEDICUS (Published by the American Medical Association): This publication began in 1916 as the Quarterly Cumulative Index, and at first covered principally clinical subjects. It enlarged its scope in 1920 and now publishes 2 volumes a year. Each volume is arranged on the principle of a dictionary catalog: it is strictly alphabetical, authors and subjects being arranged in one continuous alphabet requiring no supplementary index, and each subject is subdivided within itself alphabetically. It now covers practically the same field that the Index Medicus did. At the front of the volume is a list of new books arranged alphabetically by author, and also classed by subject; a list of the principal publishers of medical literature and their addresses, and a list of the periodicals indexed by the Quarterly Cumulative Index Medicus.

3. INDEX CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE: This is published in four series: 1st, from 1880-1895; 2nd, 1896-1916; 3rd, 1918-1932; 4th, 1936 to date. It is arranged alphabetically by subject in this manner: v. 1 will cover, for instance, subjects from A-Berlinski; v. 2, Berlioz-Cholas, and so on through the alphabet until Z is reached. Series 2 begins with A again. With this arrangement, v. 1 would cover, for example, all important work done on the arteries prior to 1878-79. The first volume of the 2nd series would cover work on this subject from 1878 to 1894-95, the first volume of the 3rd series, from 1896 to 1915, and the first volume of the 4th series, from 1916-1935. More modern work would have to be obtained from the Quarterly Cumulative Index Medicus, unless the subject happened to be in the part of the alphabet for which a volume has just been issued. For this reason the Surgeon-General's series is chiefly valuable for rapidly working up an historical background for a subject and for opening up a field in the literature with which one is unfamiliar. The fourth series is still incomplete.

4. CATALOGUE OF SCIENTIFIC PAPERS AND INTERNATIONAL CATALOGUE OF SCIENTIFIC LITERATURE (published by the Royal Society, London). A selective bibliography of important scientific papers covering approximately 1800-1912. The fields of anatomy, physiology, bacteriology, biology, anthropology and chemistry are represented. Papers are listed under the authors' names, and this work is excellent as an aid to obtaining complete bibliographies of any one author. The volumes can be consulted in the main reading-room of the University Library.

ABSTRACT JOURNALS

These journals give brief abstracts of books and articles appearing in the periodicals of many countries; they are excellent for obtaining information regarding articles published in periodicals not available in the library and in unusual foreign languages. Many of the best abstract journals up to the present are published in Germany. All abstract journals contain author and subject indices. Some of those available in the library and the subjects they cover are as follows:

GENERAL

- 1926-date Biological Abstracts.
 1834-1926 Jahrbücher d. in- und Ausl. ges. Med. (Schmidt's Jahrbuch).
 1844-1865 Jahresbericht u. d. Fortschritte d. ges. Med. in allen Länder.
 1866-1916 Jahresbericht u. d. Leistungen u. Fortschritte in d. ges. Med.
 1916-date Physiological Abstracts.

ANATOMY, HISTOLOGY, EMBRYOLOGY

- 1922-date Anatomischer Bericht.
 1892-1914 Jahresbericht u. d. Fort. d. Anat. u. Entwicklungsgesch.

BACTERIOLOGY AND IMMUNITY

- 1917-1925 Abstracts of Bacteriology.
 1890-1911 Jahresber. u. d. Fortschritte in d. Lehre v. d. Gärungsorganismen u. Enzymen (Koch's Jahresbericht).
 1902-date Zentralblatt f. Bakteriologie, Parasitenkunde u. Infektionskrankheiten, Abt. 1, Referate.

BIOLOGY

- 1926-date Berichte u. d. wissenschaftliche Biologie.
 BLOOD VASCULAR SYSTEM, HEART AND BLOOD
 1904-date Folia Haematologica, Referate.
 1908-1927 Zentralbl. f. Herz u. Gefäß Krankheiten.
 1927-date Zeitschrift für Kreislaufforschung.

CANCER

- 1926-1932 Cancer Review.

CHEMISTRY AND BIOCHEMISTRY

- 1902-1910 Biochemisches Centralblatt.
 1907-date Chemical Abstracts.
 1890-1911 Jahresbericht u. d. Fortschritte in d. Lehre v. d. Gärungsorganismen u. Enzymen (Koch's Jahresbericht).
 1871-1919 Jahresbericht u. d. Fortschritte d. Thier Chemie (Maly's Jahresbericht).
 1910-1921 Zentralblatt f. Biochemie u. Biophysik.

CLINICAL MEDICINE

- 1920-date International Medical Digest.
 1845-1879 Half-yearly Abstracts of Medical Sciences and Monthly Abstracts of Medical Science.
 1881-date Revue de Médecine.
 1863-1915 Zentralblatt f. d. Medicinischen Wissenschaften.
 1880-date Zentralblatt f., (later) Kongresszentralblatt f. Innere Medizin.

GYNECOLOGY AND OBSTETRICS

- 1877-date Zentralblatt f. Gynäkologie.

HYGIENE, PUBLIC HEALTH, TROPICAL MEDICINE

- 1926-date Bulletin of Hygiene.
 1912-date Tropical Diseases Bulletin.
 1904-date Revue de Médecine et d'Hygiène Tropicales.

DERMATOLOGY AND VENEREAL DISEASES

- 1897-1920 Dermatologisches Centralblatt.
 1921-date Zentralblatt f. Haut u. Geschlechtskrankheiten.

NEUROLOGY AND PSYCHIATRY

- 1882-1921 Neurologisches Centralblatt.
 1910-date Zentralblatt f. d. Gesamte Neurologie u. Psychiatrie.

NUTRITION

- 1931-date Nutrition Abstracts and Reviews.

PATHOLOGY

- 1890-date Centralblatt f. Allgemeine Pathologie u. Pathol. Anatomie.
PHYSIOLOGY, EXPERIMENTAL PHARMACOLOGY & EXPERIMENTAL MEDICINE
 1920-date Bericht u. d. ges. Physiologie u. exper. Pharmakologie.
 1890-1911 Jahresbericht u. d. Fortschritte in d. Lehre v. d. Gärungsorganismen u. Enzymen (Koch's Jahresbericht).
 1871-1919 Jahresbericht u. d. Fortschritte d. Thier Chemie (Maly's Jahresbericht).
 1910-1921 Zentralblatt f. Biochemie u. Biophysik.
 1887-1921 Zentralblatt f. Physiologie.

SURGERY

- 1913-date International Abstracts of Surgery.
 1926-date International Surgical Digest.
 1881-date Revue de Chirurgie.
 1874-date Zentralblatt f. Chirurgie.

Many other periodicals, both foreign and English, contain abstract sections covering the literature in their particular subject. A few such journals are:

- American Journal of Cancer.
 American Journal of Diseases of Children.
 American Journal of Obstetrics and Gynecology.
 American Journal of Ophthalmology.
 American Journal of Roentgenology.
 American Journal of Syphilis.
 American Review of Tuberculosis.
 Archives of Dermatology and Syphilology.
 Archives des Maladies de l'Appareil Digestif.
 Archives d. Maladies du Coeur, des Vaisseaux et du Sang.
 Archives de Médecine des Enfants.
 Archives of Neurology and Psychiatry.
 Archives d'Ophtalmologie.
 Archives of Ophthalmology.
 Archives of Otolaryngology.
 Archives of Pathology.
 Archives of Pediatrics.
 Archives of Physical Therapy, X-Ray, Radium.
 Archiv f. Schiffs und Tropen Hygiene.
 Archiv f. Verdauungskrankheiten.
 British Journal of Children's Diseases.
 British Medical Journal.
 Canadian Medical Association Journal.
 Endocrinology.
 Endokrinologie.
 Fortschritte a. d. Gebiete der Röntgenstrahlen.
 Journal of Allergy.
 Journal of the American Medical Association.
 Journal of Bone and Joint Surgery.
 Journal of Industrial Hygiene.
 Journal of Nervous and Mental Diseases.
 Journal of Obstetrics and Gynaecology of the British Empire.
 Journal de Physiologie et de Pathologie Générale.
 Journal für Psychologie und Neurologie.
 Journal d'Urologie.
 Radiology.
 Review of Scientific Instruments.

Urologic and Cutaneous Review.
 Zeitschrift f. Krebsforschung.
 Zeitschrift f. Tuberkulose.

REVIEW JOURNALS

These journals give comprehensive studies of a given subject, its history, and outline the modern experimental work done, bringing it up to the period at which the review was published. Such articles usually give exhaustive lists of references and are invaluable from a bibliographical standpoint. Some of those available and the subjects they cover are:

- 1924-date Chemical Reviews.
- 1894-date Ergebnisse der allgemeinen Pathologie u. pathologische Anatomie; pathology and pathological anatomy.
- 1891-date Ergebnisse der Anatomie u. Entwicklungsgeschichte; anatomy, histology, embryology.
- 1926-date Ergebnisse der Biologie; general biology, tissue cultures, regeneration, etc.
- 1932-date Ergebnisse der Enzymforschung.
- 1920-date Ergebnisse der gesamten Medizin.
- 1931-date Ergebnisse der Kreislaufforschung (now KreislaufBücherei).
- 1925-date Ergebnisse der medizinischen Strahlenforschung.
- 1914-date Ergebnisse d. Hygiene, Bakteriologie, Immunitätsforschung u. exper. Therapie (formerly Jahresbericht u. d. Ergebnisse d. Immunitätsforschung); bacteriology, immunity, experimental therapy, hygiene, etc.
- 1908-date Ergebnisse d. inneren Medizin u. Kinderheilkunde; clinical medicine and pediatrics.
- 1910-date Ergebnisse d. Chirurgie u. Orthopädie; surgery and orthopedics.
- 1902-date Ergebnisse d. Physiologie; physiology.
- 1921-date Physiological Reviews.
- 1926-date Quarterly Review of Biology.
- 1922-date Medicine.
- 1901-date Year Books of Practical Medicine (formerly Practical Medicine Year-books).
- 1931-date Year Book of Radiology.

The "Ergebnisse" articles are very elaborate and the reference lists can be very useful to a worker in a given subject even if he cannot read sufficient German to utilize the text.

BIOGRAPHY

Who's Who in America.
 Who's Who in Medicine.
 Hirsch's Biographisches Lexikon der Aerzte and its continuation.
 Kelly's Dictionary of American Medical Biography.
 Cattell's American Men of Science.

MEDICAL HISTORY

Garrison, Introduction to the History of Medicine.
 Neuberger, History of Medicine.
 Neuberger and Pagel, Handbuch d. Geschichte d. Medizin.
 Packard, History of Medicine in the United States.
 Aesculape.
 Annals of Medical History.
 Archiv f. d. Geschichte d. Medizin.
 Janus.
 Medical Library and Historical Journal.
 Charaka Club, Proceedings.

Institute of History of Medicine, Johns Hopkins University, Bulletin.
Society of Medical History of Chicago, Bulletin.
Medical Library Association, Bulletin.
Medical Classics.

MISCELLANEOUS REFERENCE WORKS

American Medical Association Directory; lists physicians, hospitals, and medical societies and libraries in this country.
Various language and medical dictionaries.
Minerva; gives data—names of faculties, etc.—of learned societies, universities, institutes, etc. in the whole world, listed under the name of the city in which they are located.
Abderhalden's Handbuch d. biologischen Arbeitsmethoden; encyclopedia of experimental procedures in biological fields, including medicine.
Henke u. Lubarsch, Handbuch d. speziellen Pathologie; best reference work on pathology available; gives splendid plates and illustrations of rare pathological conditions.
Kolle u. Wassermann, Handbuch d. pathogenen Mikroorganismen; bacteriology, parasitology and immunity.
Möllendorf, Mikroskopischen Anatomie des Menschen; human histology.
Bethe und Bergmann, Handbuch d. normalen u. pathologischen Physiologie; normal and pathological physiology.
Jadassohn, Handbuch d. Haut u. Geschlechtskrankheiten; dermatology and venereal diseases.
Halban und Seitz, Biologie u. Pathologie des Weibes; gynecology.
Mense, Handbuch d. Tropen Krankheiten; tropical medicine.
Byam and Archibald, Practice of Medicine in the Tropics.
Blumer, Bedside Diagnosis.
Forchheimer's Therapeusis of Internal Diseases (Blumer edition)
Abt's Pediatrics.
Haynes, Clinical Pediatrics.
Keen's Surgery.
Kirschner u. Nordmann Chirurgie.
Neue Deutsche Chirurgie.
Osler and McCrae, Modern Medicine.
Oxford Loose-Leaf Medicine.
Oxford Loose-Leaf Surgery.
Nelson's Loose-Leaf Medicine.
Nelson's Loose-Leaf Surgery.
Lewis, Practice of Surgery. (Loose-Leaf)
Tice, Practice of Medicine. (Loose-Leaf)
Sajous' Encyclopedia of Medicine.
Reference Handbook of Medical Sciences.
Oxford Monographs on Diagnosis and Treatment. (Loose Leaf)
Brenneman, Loose-Leaf Pediatrics.
Mock and Pemberton. Loose-Leaf Physical Therapy.
Davis, Loose-Leaf Gynecology and Obstetrics.

CORRECT FORM FOR A REFERENCE: In order to locate an article in any periodical, it is essential to have the reference in some such form as that given below. The order should be as follows: author, brief note of title or subject matter, name of periodical, correct volume and page, and year of publication. For example:

Richardson, M. W., Typhoid bacillus in urine. Jour. of Exper. Med., 3:349-361, 1898.

APPENDIX B*

Please turn in one written reference from each source listed, using form given on last sheet of outline.

1. Get a reference on stomach, anatomy or histology from Index Medicus, 2d ser.
2. Get a reference on kidney, physiology from Index Medicus, 3d ser.
3. Get a reference on teeth, histology from Cumulative Index Medicus.
4. Get a reference on heart, physiology from Surg. General's Cat., 1st ser.
5. Get a reference on heart, physiology from Surg. General's Cat., 2d ser.
6. Get a reference on heart, physiology from Surg. General's Cat., 3d ser.

*Illustration of type of practical work assigned students.

Medicine as a Career*

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Medical students the world over are very much the same. When I was a student at the University of Madrid, several of my classmates and myself once discussed the reasons that had inspired each of us to take up the study of medicine. One man had been attracted to it because of the unique opportunity medicine affords for service to our fellow man. Another's father was a doctor and he had developed a fondness for the work through lifelong contact with it. A large number had been patients in hospitals and the scientific aspects of medicine appealed to them. Several had seen motion pictures, read books or witnessed theatrical plays in which the doctor was depicted as a hero and they had been fascinated with the romantic side of medical practice. In the midst of our conversation, a whistle blew in a nearby factory calling back to duty the workmen who had been enjoying their noon lunch in the park before us. One student facetiously remarked that he had decided to study medicine in order to escape the answering of a whistle call for the remainder of his life. How little he realized how more enslaving the telephone of the physician can be than the whistle of a workshop!

You are here as premedical students because of an equal variety of influences such as those which the Spanish students mentioned. You are, naturally, vitally interested in ascertaining whether medicine is really the best path for you to follow in your life work. The objective of your Dean in requesting me to give you this talk was that it might aid you in orientating yourselves as to the future possibilities in the practice of medicine.

Medicine has been called the mother of the sciences. Through the ages men learned that certain remedies were valuable in disease, that particular climates were salubrious while some were pestilential, that special diets were harmful while others were remedial, and thus gradually accumulated therapeutic and hygienic facts which were handed down through successive generations by means of the songs and stories of folklore.

Scientific medicine practically begins with Hippocrates who, with his disciples on the Island of Cos off the coast of Greece, 460-370 B. C., collected the then existing medical knowledge, codified it, analyzed it and was able to see in its workings many natural laws. He devised controlled experiments, outlined courses of observation of patients in various diseases, and gave us the scientific method in medicine. He has justly been called the father of medicine.

The Arabs took over the learning of the Greeks and Romans after the fall of Byzantium and added to it the anatomical knowledge of the Egyptians together with their own chemical and botanical discoveries. The Moors brought

*Address delivered to the Premedical Class of Marquette University, September 30, 1936.

all of this information with them in their emigration to Spain, where it was translated and diffused throughout the countries of Western Europe. The Spaniards discovered many valuable drugs in the new world and learned much about tropical diseases which they donated to the sum total of medicine. The French have especially contributed in the field of clinical medicine, the Germans in bacteriology and chemistry, the British in anatomy and physiology and the Americans in surgery. Every nation and every people of history have added things of value to this science. It is, therefore, the universal science which knows no boundaries of race, country or religion, in peace or in war.

REQUISITES FOR SUCCESS

Naturally, you wish to know what are the essentials for success in this field. I would place first of all that of robust health. The medical course of study is probably the most arduous of any curriculum, and its demands on the health and energy of a student are so exhausting that many have to abandon it. The life of an intern and of a practicing physician is such that one is seriously handicapped in the struggle for existence unless his own health is good. In justice to anyone of you who does not enjoy unusually good health and a strong physique I would urge you right now to abandon medicine as a career.

Next in importance I would place personality. A physician is always a salesman whose success depends in high degree on his faculty for selling his patients confidence in his professional ability and securing their cooperation in his management of their cases. If you are of the retiring type and suffer with self-consciousness or inferiority complexes, medicine is not your field. I would say if you are not a leader among your fellows and a positive force in the activities of your class and college life, you probably do not possess the personal requisites for success in medical practice. You will make a tremendous mistake if you consider medicine a refuge for the student who is negative in character and mediocre in scholarship.

One's contacts are of paramount importance in medicine. You must associate with the best people, whether they be poor or rich, and must cultivate those whose personal, political and social qualifications are such as you can well afford to emulate. It is especially true of the physician that he is known by the company he keeps. This is decidedly important in student life during the formative period of your mature character. You must marry the right sort of a woman, one whose good health promises not to be an added burden and whose character and personality should be a comfort and inspiration to you in your difficult life's work. I mention this especially at this time because many of you will form liaisons during your college days which will lead to your marriage. Remember that a doctor's wife can make or ruin him.

Your scientific training must be of the best. Practically any medical school today affords adequate opportunity for acquiring the necessary knowledge, but a student must not be satisfied with just passing his courses and graduating. He must organize his studies so as to master thoroughly the principles with the essential technical details and must secure a firm grounding in the basic funda-

mental sciences if he is to be a scientific clinician and not an empiricist. The mere ability to memorize facts parrot-like without mentally digesting them will not carry you far in a medical school today. Take every advantage of your opportunities for study, work as hard for yourself as you would if employed by another in business, and remember that your obligation to humanity is as great now while you are a student acquiring knowledge as it will be in the future when you are a practitioner at the bedside.

Many doctors of excellent scientific training and possessing all the desirable personal qualifications fail to make a success in medicine because they have too diversified interests. They spread themselves out too thin over their vocation and business, social and political avocations; they have too many irons in the fire. The practice of medicine is a full-time job and nothing else should make much of a demand on the doctor's energy, time and interest in his work. The same applies with equal force to the medical student.

Honesty and character are the *sine qua non* of medical practice. People must have confidence in your integrity if they are to come to you as patients. A man may possess the finest scientific training and attractive personal qualities and yet fail because of his lack of honesty, while around him men of lesser abilities are succeeding because people believe they can be depended on in matters of life and death. You must not only be honest with your patients but you must be square with your fellow practitioners. No doctor can go very far today without the cooperation of other doctors, and that collaboration will depend in direct ratio to their confidence in him as a man and as a physician to whom they can refer their patients with assurance of fair dealings. And by no means neglect the development of an attitude of rigid honesty in matters of science.

ADVANTAGES OF MEDICINE

There are many attractive features to medicine as a career. The requirements for the M.D. degree are today in many respects the highest for any academic degree, and its acquisition is a mark of high accomplishment, being a source of pride to its holder throughout life. The medical man enjoys great prestige in all human contacts, he has access to every home and to the best society, which makes it possible for him to attain eminence limited only by his ability and character.

Medicine affords a unique opportunity for rendering a useful and satisfactory service. Its practice is a fascinating work and few men ever tire of it because each case is a challenge and there is constantly the high adventure of the saving of human life. Unusual opportunities are presented in the field of research to obtain fame and experience the thrill of discovery. Physicians in the public health field find great stimulus in the realization that their's is the responsibility for the health and prosperity of whole cities and states. Those who practice in the tropics may feel the glory of their rôles in the exciting drama of the conquest of vast pestilential lands for occupation by the human race. The medical historian noting the decline of Greece and Rome through malaria, the

destruction of the Aztec and Mayan cultures by yellow fever, the dissolution of the Spanish Empire by tropical diseases, the map of the world constantly changed by plagues, can see how the ebb and flow of civilization have ever been in direct ratio to the status of medical science.

DISADVANTAGES

Overcrowding of the profession seems to me to be the basis of most present day disadvantages in the practice of medicine. In the United States there are 30,000 doctors more than are gaining a reasonable living from their work. I am told that in greater New York alone during the depression more than 500 doctors, graduates of the finest medical schools of this country and abroad, quit the practice of medicine and became taxi drivers in order to make a living. This has happened in lesser and different manner the country over. To add to this grave situation, about 5,000 new doctors are entering practice each year, while approximately less than 3,000 die or retire from practice. The overcrowding of the medical field in other countries has invariably caused a lowering of medical ethics and a poorer standard of medical service to the public. In view of this, the American Medical Association is making a decided effort to remedy overproduction by limiting the numbers of medical students and practically stopping the influx of foreign graduates. However, overcrowding of the profession will be a serious problem for a generation at least, and if the ominous blight of state medicine descends on the United States, as it most probably will in some form or other, the position of 50 per cent of the doctors will be tragic indeed.

It has been reported from uninformed sources that due to the concentration of the doctors in the cities the smaller towns are suffering from a scarcity of physicians. With modern means of rapid transportation any patient is only a few hours away from a hospital, so that the country doctor is usually employed only in emergencies and minor sicknesses, which is not enough to justify his remaining in such districts. From my own investigations, I can assure you that any community, however small, can easily obtain a physician if it will support him.

No profession calls for greater physical and mental energy than does the practice of medicine. The physician is constantly under stress and strain because of the terrific responsibilities he carries. The great majority of doctors die of heart disease or a paralytic stroke.

The cost of obtaining a medical education is higher than that of any other degree. The expense of maintaining the well equipped laboratories of a medical school is so great that it can only be done with the aid of endowments. Even though the tuition fees in medical schools average much higher than those for other curricula, the medical student contributes approximately only one-third of what it costs his university to educate him. Because every hour of the school day is scheduled with exacting class, laboratory or clinical duties, and the night hours are required for study, the student has practically no time for outside work to aid in defraying his expenses. Most medical schools require that before

admission a student present evidence of sufficient financial resources to complete the medical course without earning a part of it during months of the school session.

The seven years of premedical and medical study call for a cash outlay of approximately \$10,000. To this should be added the \$10,000 which could reasonably be earned by the student in the meantime, provided he exercises in his job the same ability and hard work necessary for obtaining a medical degree. Thus, his medical diploma would represent a cash investment of about \$20,000. The average net income of physicians is now about \$1,800 a year. The days of big medical fees are practically over; only a very few outstanding men can hope to make more than a comfortable living at medicine in the future. From a financial standpoint alone, a medical education is a decidedly poor investment.

The curriculum for the M.D. degree today only prepares one for general practice. The newer graduates who desire to do major surgery or follow any of the specialties must spend an additional four years in postgraduate study and pass the rigorous examinations of the higher examining boards. They will not be permitted to practice a specialty or charge a specialist's fees without this.

WOMEN IN MEDICINE

Let us be honest and frank in discussing this. In this day of terrific competition in medical practice women are distinctly handicapped. Institutional, teaching and other salaried positions of importance are practically closed to all except the rare woman of exceptional productive ability. Private practice, except possibly in the fields of obstetrics and pediatrics, does not offer them much because of their sex and physical inadequacy. The medical woman is generally handicapped as compared with non-medical women in making a satisfactory marriage, and numbers of women physicians have told me that they made a serious mistake in sacrificing their lives to a profession and a career. During their early years, they are fascinated by the science and human relationships of medicine and willingly make any sacrifice for it, but during middle age they would prefer a home and family of their own. They cannot be entirely successful in both at the same time, because either the family or the medical career must be neglected. Most of the British and many foreign medical schools do not admit women; not due to prejudice, but because, as a rule, women do not justify the expense of educating them in medicine in comparison with men.

I most certainly would not advise any woman to study medicine today. The fields of modern scientific nursing, medical technology, and the social sciences offer women adequate opportunities for the highest mental development and service to humanity, in which their sex would prove an asset instead of a liability.

ADMISSION TO MEDICAL SCHOOLS

The medical schools of the United States admit about 6,000 students annually. For these places there have been approximately 14,000 applicants who have completed all the necessary premedical studies. In the Marquette University Medical School the freshman class is limited to 100 admissions for which

there are usually more than 600 applicants. Selections are made on a basis of individual qualifications regardless of the university in which premedical training was obtained, no preference being given to Marquette premedics as such. The chances are that only about 50 per cent of those of you here today will be admitted to any medical school, and it is obvious that your record as a premedical student must be an excellent one. The present-day medical students are a highly selected group, but of each 100 who enter only about 75 find themselves able to complete the medical course due to the terrific pace and high standards of scholarship required.

Since opportunities for studying medicine at home are limited, various Americans have gone to foreign schools in the past. Only foreign degrees which give the right to full medical practice in the country in which they are conferred are now recognized in the United States, and, since foreign countries permit only their own citizens to practice, an American cannot now obtain the essential state diploma of a foreign university. European medical faculties have always enjoyed high prestige but American medical schools today are the equal of any in the world. There is still room for improvement in providing more autopsies for medical instruction, and, here, let me ask your cooperation and that of all public-spirited citizens in obtaining permission for autopsies in your own families. Thus, you will aid American medicine to attain its highest scientific development and render its most useful service to yourselves and to humanity at large.

PREMEDICAL STUDIES

In all other countries besides the United States the subjects of the premedical curriculum are included in the medical course and taught with a medical emphasis. In this country we have preferred to have you spend the years of introductory science studies in a college of liberal arts with the hope that your association with teachers and students of other than medical interests would give you a breadth of viewpoint and a modicum of general culture, elements vitally important to the physician.

Many students make the mistake of electing science subjects almost exclusively in their premedical schedule which tends greatly to defeat the very purpose of their presence in the college of arts. You will be interested to know that students who have had a preponderance of science courses before entering the medical school do no better there, as a rule, than those who have taken a generous amount of cultural subjects. In fact the A.B. graduate usually does better as a medical student than the holder of a B.S. degree.

I presume it is perfectly obvious to you why one who is contemplating the study of medicine should complete courses in physics, chemistry, biology and ancient and modern languages, but why should a premedical student follow mathematics? Because, aside from their value as a discipline for the mind, which prepares one well for the acquisition of the detailed knowledge required in the medical sciences, mathematics finds numerous applications in the expression of natural laws, calculation of scientific formulae and clarifying many

complex ideas. The medical research worker who has not had an adequate training in mathematics is genuinely handicapped and usually must take up again a course of instruction in this field.

The study of English is much neglected by premedical students. The physician's need for adequate technical mastery of it is great, indeed. He must associate with all classes of people and the language he uses instantly stamps him as a man of culture and learning or betrays him. If a medical man is to gain more than a very limited local recognition, he must be able to display his erudition and accomplishments in medicine by public addresses before medical and even lay groups, and if he is to be known beyond his own community he must write for the medical journals. An adequate facility in speaking and writing his mother tongue is one of his greatest aids to success.

The subject of history has very definite value for the physician. Until recently the curative and preventive aspects of medicine have received most attention, but the rôle of medicine in social science will be the great field of the future, and sociology is nothing more than the application of the lessons of history to present day problems. To understand the present, we must know what has gone on in the past, for human nature is essentially the same today as in previous ages and history constantly repeats itself.

Several years ago, over wine glasses in our beloved Madrid, Blasco-Ibáñez discussed with me his book *Los Muertos Mandan* ("The Dead Command"). He said that while visiting one of the cemeteries and meditating before the graves of great men of the past, on their contributions to the present, the thought came to him that practically every act of our daily lives, the customs we observe, the religions we follow, the work we do, the very clothes we wear were the products of those who have passed on. Although they have gone from this earth, the dead still commanded the living. Thus, if we would understand what we are and why we live as we do, we must turn to history for the answer; history then becomes for us a thing of very tangible application.

RESUME

The requirements for the entrance into medical practice are today exceedingly high. Medicine as a career is only to be undertaken after the most serious analysis of one's qualifications for its study and practice with emphasis on an endowment of robust health, adequate financial resources, and a background of personality with culture. Unless you are certain beyond any reasonable doubt that you are unusually well equipped for the work in all essentials, do not do yourself the injustice of undertaking it lest you become the proverbial square peg in a round hole. Medicine of the future will be radically different from that of the past and previous standards of training will not be at all adequate for the newer types of medical practice. Opportunity in medicine is only for students of accomplishment in whom are united the peculiar qualities which the profession demands and who show promise of becoming the highest example of the scientist.

A Modern Method of Teaching Medical History

EMERSON CROSBY KELLY

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At the Albany Medical College (Union University) interest has recently been aroused in a modern method of teaching medical history. This method is by no means a new one because it has been used in some medical schools for many years, but its general adoption would be a valuable advance in the presentation of this subject.

The ideal method of teaching medical history would make the instruction personal, both in regard to the individual student and to the great leaders in medicine. The student, first of all, must be encouraged to do some work on his own account and to feel a direct application of that work to his problems of disease in the wards and later in general practice. The great leaders in medicine must be introduced to the student not only by portrait and biography but more especially by a personal contact with and use of their original publications. The direct application of these original publications to the modern interpretation of disease and to the modern methods of diagnosis and therapeutics must be shown clearly. Fortunately, most students are practical and will be interested if they can see present or future value in this or any other study.

Too frequently in the past and, to a certain extent, at present, seeds sown by the teacher of medical history have not borne fruit, both because the soil was poor and because the seed was lifeless. Even with the advanced academic training now given in the premedical courses, very few medical students have a knowledge of past history sufficient for grasping and retaining the facts of medical history. This is well illustrated by a simple questionnaire submitted to the medical history class for second year students at the Albany Medical College. Ten simple questions were asked, to be answered in one word when desired, e.g., Who was Herodotus? What was Alexandria noted for? With what is the name Marathon connected? Where is the Acropolis? The average number of correct answers was 4.4. And all these men hold academic degrees.

The formal lecture of an hour's reading of names and dates with complex interpretations of economic and social forces is a nightmare to the student. When exhaustion ensues, a quiet sleep follows. There is little wonder that the student who is interested in his presentation at tomorrow's clinic of Mr. S. with Paget's disease of the bones, of Mr. T with a water hammer pulse, grows to regard medical history as excess baggage.

But hand this same student a copy of Paget's original papers on osteitis deformans or of Corrigan's articles on aortic incompetency and you will see an awakening of interest in medical history.

At our school a series of twelve lectures on medical history is given during the last trimester of the second year. This is a general introductory course, following, after a manner, Dr. Sigerist's suggestions and outline "On the Teaching of Medical History."¹ These lectures are illustrated by using a projection lantern and pictures removed from histories, texts and photostatic copies of important works. The pursuit of these illustrations can be an interesting hobby of both teacher and student. Outstanding medical books are demonstrated, such as the Edwin Smith Papyrus, Vesalius' *De Fabrica Humani Corporis*, Harvey's *De Motu Cordis* and Morgagni's *De Sedibus et Causis Morborum*.

An informal introduction to medical history is made in the first year when the class in anatomy is advised and encouraged to read Hilton's *Rest and Pain* and the class in physiology is required to read Harvey's *De Motu Cordis*. These historic landmarks are then directly connected with present day problems of medicine.

But the most valuable part of the teaching of medical history at the Albany Medical College is the introduction of the historical note into many clinical presentations. In a class for the third and fourth year students on Paget's disease of the bones, one student is assigned to the task of presenting the original papers of Paget on this subject. On the screen are projected the fine original illustrations. A patient suffering from this disease is brought before the class and the careful observations of Paget are confirmed on the living subject. Both by illustration and description Paget's original findings of enlarged head, curved and almost rigid spine, contracted chest, widened pelvis and bowed legs are demonstrated on the patient. Certainly, the student should obtain and retain a good idea of Paget's disease of the bones by this method.

This presentation has been made less complicated by a republication during the past year of many of the famous papers in medical history. This series² will continue until all the valuable landmarks in medical literature are readily available to the profession.

At another clinic, Corrigan's disease and pulse are discussed after a student has demonstrated Corrigan's original articles. In the same way, Pott's disease of the spine, Pott's fracture, Colles' fracture, Bell's palsy and phenomenon and many other conditions are studied and demonstrated. The student learns the original and the progress of interpretation of a disease entity down to the present day. In other words, he is virtually interested in medical history.

If the student becomes interested, even in a small way, in the pleasurable and useful pursuit of medical history, he will probably follow this interest in later years and will be a wiser and better doctor.

We try to convey to our students the feeling of Claude Bernard when he wrote the sentence which has become a slogan of the American Association of the History of Medicine, "We stand upon the intellectual shoulders of these

1. Bull. Inst. History Med., 2:123-139 (April), 1934.

2. Medical Classics; Williams & Wilkins Company, Baltimore.

medical giants of by-gone days and, because of the help they afford us, we are able to see a little more clearly than they were able to do."

CONCLUSIONS

The following method is used in teaching medical history at the Albany Medical College:

1. First year students are assigned to a reading and study of the greatest masterpieces in medical history.
2. Second year students are given a short introductory course covering the epochs of medical knowledge.
3. Upper classmen are taught medical history by a correlation of any clinical problem with the original and classic description of that condition.

Report of the Committee on Internships and Residencies of the American Hospital Association*

Your Committee, realizing that there are many phases to this subject, has decided to limit its report at this time to recommendations for the training of the intern during his stay in the hospital, and to draw to the attention of hospital boards of managers and administrators, certain factors that should be given consideration in the training of residents in the light of recent activities of the Advisory Board on Medical Specialties of the American Medical Association.

INTERN TRAINING

The board of managers of all hospitals accepting interns should realize that the recent graduate physician has spent the best part of his life preparing himself for internship, and that it is the duty of the hospital Board to see that he is provided with a definite and organized program of practical instruction.

The Intern Committee of the Medical Board can only function efficiently through the active cooperation of the administrator of the hospital. In fact, he is their executive officer and dean of studies to ensure smooth and coordinate functioning of the program. Only in his office may records be centralized and kept in a permanent file.

The Committee recommends that each intern be given a thorough physical examination and chest x-ray on his arrival for duty, and periodic health examinations during his service; all health records to form a part of the permanent file that should be kept on all interns.

It is also recommended that the hospital prepare a manual for the interns to be given to them when they commence their service; this manual to contain the rules and regulations of the hospital as far as they pertain to the intern, and also the details of the various procedures that are carried out routinely on patients. The contents of the manual should be explained to the intern on arrival, and should be his guide during his term of office. Further recommendations will be made later in this report regarding practical demonstrations, etc., of certain common nursing and professional procedures.

The following is a suggested program to be organized by the administrator for the initial instruction of the interns:

1. (a) Hospital regulations and rules.
- (b) Ambulance emergencies and first-aid.
- (c) Introduction to outlined procedures of the hospital.
- (d) Nursing technics.
- (e) Social Service Department cooperation.
- (f) Physical Therapy utilization.
- (g) Occupational Therapy utilization.

*Published with the permission of the American Hospital Association.

- (h) Laboratory technics and duties.
- (i) Ordering x-ray examinations.
- (j) Prescription of diets.
- (k) Oxygen therapy.

2. Program of training of interns in the Outpatient Department in methods of office practice. This may be done by asking members of the Staff to cooperate. A schedule should be made up in advance and might include:

- (a) Surgeon—Minor Surgery.
- (b) Internist—Physical Diagnosis.
- (c) Pediatrician—Infant Feeding.
- (d) Dermatologist—Common Skin Eruptions.
- (e) Syphilologist—Office Treatment of Syphilis.
- (f) Urologist—Treatment of Gonorrhea.
- (g) Radiologist—X-ray Diagnoses.
- (h) Pathologist—Office Laboratory Work.
- (i) Orthopedist—Plaster casts, etc.

The Committee recommends that the Board of Trustees of the American Hospital Association consider the formation of a section on Interns, and that a program be arranged at its annual convention, where a symposium could be held at which the various aspects of intern training might be discussed. Suggested topics for such a program are:

- 1. Intern selection and examinations.
- 2. Modes of intern representation—
 - (a) Desirability of an intern organization?
 - (b) Appointment of a senior intern to act as spokesman?
- 3. The problem of time off duty.
- 4. Time schedule and prevention of conflicts between services.
- 5. Grading of interns' work.
- 6. Control of house staff and their discipline.
- 7. Married interns.
- 8. Care of interns—food, housing, recreation, uniforms, etc.
- 9. Stipends, etc.

All of the topics listed above present problems to the hospital administrator, and the Committee feels that a sectional program would be timely.

The Committee draws the attention of hospital Boards and Administrators to the pamphlet "Essentials in a Hospital Approved for Training Interns" of the American Medical Association, with the recommendation that the American Hospital Association go on record as approving them as promulgated. The American Medical Association has been active in this field for several years and has spared no expense to accumulate data which is kept up-to-date, and which is freely available to hospital authorities.

Your Committee on Interns for 1935-1936 in its report at Cleveland in September, 1936, recommended the use of the Intern Placement Bureau of the Association of American Medical Colleges by hospitals in obtaining good interns.

Your present Committee wishes to extend this recommendation, and to emphasize to the hospitals the excellent service that this organization is able and willing to render to them if they will only avail themselves of its services. The Intern Placement Bureau has in its files complete information on the work done by every medical student in the United States and Canada. Its sole idea is to help the hospitals in every possible way to get desirable interns.

RESIDENCIES

Your Committee recommends that the "Essentials in a Hospital Approved for Residencies in Specialties" as prepared by the Council on Medical Education and Hospitals of the American Medical Association, be accepted by the American Hospital Association as its criteria.

Your Committee further recommends that all hospitals offering residencies in specialties to graduates in medicine determine whether or not these residencies are approved by the American Medical Association. If approval has not been requested, it might be beneficial to do so, in view of the trend in post graduate medical education to encourage physicians who are preparing for the practice of a specialty to qualify for the American Board of their specialty. One of the accepted places of early training is a residency in an approved hospital. Your Committee therefore strongly recommends to all hospital administrators the importance of familiarizing themselves with the required standards for the qualification of candidates for the various specialty boards.

American Boards of the following specialties are now in operation:

1. Internal Medicine.
2. Pediatrics.
3. Dermatology and Syphilology.
4. Neurology and Psychiatry.
5. Surgery.
6. Gynecology and Obstetrics.
7. Ophthalmology.
8. Otolaryngology.
9. Urology.
10. Orthopedic Surgery.
11. Radiology.
12. Pathology.

Your Committee recommends the inclusion of topics relative to the training of residents in its proposed symposium on interns' problems as recommended earlier in the report.

(Signed)

Donald C. Smelzer, M.D., Chairman
 E. Giddings, M.D.
 A. C. Bachmeyer, M.D.
 Malcolm T. MacEachern, M.D.
 J. A. Curran, M.D.
 Wm. D. Cutter, M.D.
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Association Exhibit

In 1936, the Association of American Medical Colleges made an educational exhibit consisting of charts depicting the results of the various studies which have been made in the past ten years at the annual meeting of the American Medical Association. The exhibit attracted considerable attention and, with added new charts, was shown again at the A. M. A. meeting in 1937. By request, the same exhibit was shown at the annual meeting of the Canadian Medical Association in June, 1937, at the annual meeting of the Wisconsin State Medical Society in September, 1937, and at the annual meeting of the Association of Military Surgeons of the United States in October, 1937.

The charts included in this exhibit give complete data on the study of student accomplishment, of applicants and of entrance credentials of the matriculants for each year since 1928. Also shown is an analysis of the faculties of the medical schools of the United States and Canada, separated into the several ranks and according to degrees held by the members; a geographic map of the United States and Canada showing location of member colleges and organization data of the Association. Many of these charts are in colors and are suitably and attractively framed. One chart shows time and place of annual meetings since the organization of the Association in 1890 and also the name and college affiliation of the president of the Association for each year. Another chart sets forth the entrance requirements of every medical school. The exhibit is unique in that it is the only one of the kind and is based, in large part, on reports received from the individual medical colleges, including several colleges

which are not members of the Association in order that all data presented will be complete.

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Teaching of Clinical Medicine

"There is nothing new under the sun." A fuller knowledge of what has gone before proves that this axiom, in the main, is true. The drive to incorporate a course on the history of medicine in the curriculum of the medical school is a worthy one; it should receive the support of every one who is responsible for the building of a curriculum. Much can be learned from such a course, sometimes more than can be learned from other, more usual, courses. The same can be said of a study of the history of medical education and medical teaching. A thoughtful perusal of the papers which have been presented at the forty-seven annual meetings of the Association of American Medical Colleges gives proof for this statement, if any is needed.

Since 1907, it has been the custom to devote one entire session of the annual meeting to teaching. The foremost teachers in our medical schools have taken part in this program for thirty years! Nearly 100 papers on teaching have been presented during these years. Why not profit from the experiences of these eminent men, each a specialist in his field as well as in teaching?

One of the earliest contributors to this program was the late Dr. William Sidney Thayer, then professor of clinical medicine in Johns Hopkins University School of Medicine. At the seventeenth annual meeting of the Association, held in Washington, D. C., in 1907, Dr. Thayer read a paper entitled "Observations on the Teaching of Clinical Medi-

cine," in which he related the methods followed at Johns Hopkins, a system which, he said, was inspired by the late Dr. William Osler, then professor of medicine at Johns Hopkins. Dr. Osler is quoted as having said, "the one satisfactory way of teaching medicine is by the direct observation and study of disease in the outpatient department and at the bedside—that in comparison to clinical medicine, all other methods are makeshifts." At that time, instruction in clinical medicine was begun at Johns Hopkins the middle of March of the second year.

At this time, students were given from 10 to 12 exercises, of 2 hours each, twice a week, on the theory and practice of physical exploration of the normal subject. It was based on the conception that it is necessary, before beginning the study of diagnosis, to be familiar with the physical basis of the methods of examination which one must employ and with the practical application of these methods in exploring the position and function of normal organs. First, a thorough inspection was made of the normal body, beginning with the chest—noting the expansion of the lungs, pulsation of the heart and the vessels in the neck; next came palpitation of the chest and abdomen. Theories of vocal fremitus were considered; physical changes which might modify vocal fremitus. Then methods of percussion were taught; variations in percussion note were considered and reasons therefor; topographical percussion with demonstrations on the cadaver and models. The heart was outlined; hatpins were introduced to mark the percussion boundaries. The heads of the pins were then cut off, the chest opened and the relation of the pins to the outlines of the heart compared. The student was thoroughly grounded both in theory and practice and had to prove his contentions and findings by actual check on the cadaver.

The main work of the third year was physical diagnosis. Instruction was given entirely in the outpatient department,

4 hours weekly. The class was divided into sections of 4 or 5 students each, with a competent teacher in charge. In the second half of the year each student had a personal instructor. Each student was assigned a case. He took the history and made a complete physical examination. His work was checked by the instructor. Men like Fletcher, McCrae, Barker, Cohoe, Emerson and Thayer conducted these classes. Recitations were held once a week; diagnostic clinics, thrice a week. Instruction in microscopic and chemical diagnosis was given twice a week. A course in medical anatomy was also given once a week for the second half of the year as a part of the general course in physical diagnosis.

In the fourth year, the work consisted mainly of practical service as assistants on the wards, the greater part of the morning during the whole year being spent in this service. Clinical lectures, recitations and conferences completed the clinical schedule of teaching.

Dr. Thayer expressed the opinion that the study of topographical percussion and of the characters of the normal respiratory sounds in the human being should form a part of or an accompaniment to the course in anatomy and physiology rather than that of clinical medicine. He hoped to see the day when it will be possible for the clinician to work hand in hand with the anatomist and the physiologist in such manner that the student may be taught to control that which he is learning on the cadaver with regard to the position and size of internal organs by the simpler method of physical exploration on the normal subject—to control that which he is taught by the physiologists with regard to the heart sounds and respiration by intelligent auscultation of these sounds, not only in quadrupeds but on human beings.

We are still discussing the best method of teaching physical diagnosis; beginning clinical instruction early in the course; personal instruction versus mass instruction; correlation between preclinical and clinical subjects despite the fact

that all these questions had been answered and were described adequately thirty years ago! Why not profit from these early experiences of men who have been acknowledged as having been fine teachers because they spent much of their time teaching and gave teaching methods much thought. True, "experience is the best teacher" and "what is one man's meat is another's poison," but in the transactions of the annual meetings of this Association, forty-seven, nearly half a century, can be found recorded the experiences of many teachers in all fields of medicine. Their experiences, plus personal experiences, should prove most helpful to every teacher and eventuate in the perfect method of teaching.

In the General Index of the Association, published in 1923, in a later supplement bringing it up to date, and in the index for each volume of the BULLETIN and the JOURNAL of the Association can be found much worth reading both on medical education and on medical teaching. Verily, "there is nothing new under the sun."

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Teacher Placement Bureau

The number of inquiries made by medical colleges to the Association of American Medical Colleges for additions to their teaching personnel, voluntary, part and full time, is increasing rapidly from year to year. In many instances, it has been possible to give assistance in securing efficient teachers. Likewise, more and more teachers who wish to make a change for obvious reasons are asking for service from the Association.

Therefore, it would seem that the Association should establish a Teacher Placement Bureau, especially as it is in a position often times to give information on teachers which is not available elsewhere, and often there is knowledge of a vacancy on some teaching staff

which can be transmitted to teachers who wish to make a change.

The Association is now preparing a list of all teachers of professorial rank in the medical colleges of the United States and Canada in response to many requests for this information and which will prove helpful in assisting colleges and teachers. At the moment, there are on file requests to assist in filling five teaching positions in as many medical colleges, mostly full time, in the pre-clinical and clinical departments.

The establishment of such a Bureau will be proposed at the coming annual meeting of the Association. If the plan is accepted, due notice thereof will be given in a subsequent issue of the JOURNAL.

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Four Years in Medicine

In the September issue of the JOURNAL, p. 310, a list of four medical colleges was given which in 1893 required four years of attendance for the degree of M.D.

To this list should be added the Woman's Medical College of Pennsylvania which organized a four years course in 1891 and in 1893 required the graded four years course as a qualification for the degree of M.D. This requirement was published in the 1892 catalog, and again in the 1893 catalog.

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Altruism? Idealism? Commercialism?

The following request was received at the headquarters of the Association:

"Dear Sirs: Will you kindly send me a detailed list of the various fields open to M.D.s. I would like to know all the remunerative activities in which physicians are eligible to engage."

What a fine start this young man is making for a life of service and devotion to an ideal! How many more like him are there?

College News

Yale University School of Medicine

Dr. Stanhope Bayne-Jones, dean and professor of bacteriology, has been elected a member of the medical advisory board of the Leonard Wood Memorial (American Leprosy Foundation). Dr. Margaret Tyler, associate clinical professor of obstetrics and gynecology, received the honorary degree of doctor of science at the recent centennial celebration of Mount Holyoke College. Dr. Ross G. Harrison, Sterling professor of biology, has been elected a foreign honorary member of the Royal Academy of Medicine of Belgium.

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Emory University School of Medicine

Dr. Russell H. Oppenheimer, superintendent of Emory University Hospital and dean of Emory University School of Medicine, Atlanta, has been made medical director of the hospital and Mr. Robert S. Hudgens, assistant superintendent, has been appointed superintendent.

A cancer clinic, a memorial to the late Mr. Robert Winship, of Atlanta, will be established at Emory University Hospital, under the directorship of Dr. James E. Scarborough, formerly of Mount Willing, Alabama.

♦ ♦

University of California Medical School

Promotions: Ottiwell W. Jones, Jr. from assistant professor of surgery to associate professor of surgery; Paul S. Campiche, Thomas F. Mullen, Mary F. Montgomery and Robertson Ward from instructor to assistant clinical professor of surgery; Leon Goldman, from instructor to assistant professor of surgery; Dorothy A. Wood, from assistant clinical professor to associate clinical

professor of anaesthetics; Clark M. Johnson, from assistant clinical professor to associate clinical professor of urology; Francis J. Rochex, from instructor to assistant clinical professor of medicine; Isabella H. Perry, from instructor to assistant professor of pathology; Warren D. Horner, from assistant clinical professor to associate clinical professor of ophthalmology.

Changes of Title: Albert J. Houston, from clinical professor to clinical professor, emeritus, of otorhinolaryngology; Herbert C. Moffit, from clinical professor to clinical professor, emeritus, of medicine.

New Appointments: Amos U. Christie, assistant professor in pediatrics, University of California Hospital.

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University of Virginia Department of Medicine

Dr. George McLean Lawson, recently professor of public health and bacteriology at the University of Louisville (Ky.) School of Medicine, has been appointed professor of preventive medicine and bacteriology. Dr. Lawson graduated from Yale University School of Medicine, New Haven, Conn., in 1924.

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University of Oklahoma School of Medicine

Dr. Onie Owen Williams of the department of pathology, University of California, has been appointed assistant professor of pathology. Dr. Ernst John Dornfeld from the department of zoology of the University of Wisconsin has been appointed instructor in histology. *Ass't Professors:* Anatomy, Dr. Berry Campbell; bacteriology, Mr. Albert J. Sheldon and Mr. Francis C. Lawler; biochemistry, Dr. Irvin L. Danielson; pharmacology, Dr. Arnold J. Lehman.

University of Vermont College of Medicine

A reorganization in the medical college has added numerous full time professors and instructors to the staff; further arrangements have been made with institutions in Burlington and vicinity for greater clinical facilities; changes have been made in the rank of professors and instructors; the equipment has been increased, a new department has been added and others enlarged.

Another departure this year is the institution of clinical work at Fort Ethan Allen. Col. T. L. Ferenbaugh of Fort Ethan Allen has been added to the staff as assistant professor of clinical medicine, Dr. Harold F. Stolz as full time instructor in medicine, and Dr. H. Medivetsky as instructor in clinical medicine.

Dr. Frank S. Ober of Boston takes the place of the late Dr. B. H. Whitbeck of New York city as professor of orthopedic surgery. Other changes in the department of surgery include the appointment of Col. L. W. Hassett of Fort Ethan Allen as assistant professor of clinical surgery, and of Dr. Edward J. Ford as full time instructor in anesthesia.

In the department of hygiene and preventive medicine, Dr. C. J. Speas will assume the newly created position of instructor in oral hygiene. In the departments of obstetrics and gynecology, now separated, Dr. P. E. McSweeney, former head of the combined departments, has been made emeritus professor, and Dr. H. A. Durfee will head the obstetrics department, with Dr. O. N. Eastman as head of the gynecology department. Dr. Jesse A. Rust will serve as full time instructor in obstetrics and gynecology, taking over the work of Dr. B. F. Clark, who is absent on leave for two years at the Woman's Hospital in New York City.

The new department of radiology and physical therapy, headed by Dr. A. B. Soule, has added Dr. Franklin P. Loury of Boston to the staff as assistant pro-

fessor of physical therapy, and Miss Priscilla Beattie as physiotherapy technician.

In medical jurisprudence, Judge Aaron H. Grout will take the place of Prof. E. C. Mower, who has resigned.

Other additions to the faculty are: Dr. Paul W. Butterfield, assistant professor of pathology; Dr. Forrest R. Davison, assistant professor of pharmacology, Dr. John A. Ferguson, assistant professor of pathology; Dr. Jean B. Piatt, instructor of anatomy; Dr. Harold B. Pierce, associate professor of physiological chemistry; Dr. Ferdinand J. M. Sichel, instructor in physiology; Dr. Walter A. Stultz, assistant professor of anatomy; Dr. Raymond D. Towne, instructor in pathology and bacteriology.

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New York Medical College

The admission requirements of the college have been increased to a bachelor's degree.

Plans are practically completed for the new college building which will be under construction before the first of the year.

New appointments: Dr. L. Corsan Reid, from McGill University, has been appointed instructor in pathology and will have charge of surgical pathology in the Flower Hospital-Fifth Avenue Hospital. Dr. Earl W. Count (Ph.D.), who was at the University of California last year, has been appointed instructor in anatomy on a full-time basis.

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Tufts College Medical School

A drive for a fund of \$2,000,000 to be used in the further development of the school, has been started.

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Woman's Medical College of Pennsylvania

By the will of Mrs. Jane M. J. Southern, widow of Dr. Frank L. Southern, the college has received the sum of \$25,000.

*University of Pittsburgh
School of Medicine*

The School of Medicine received an appropriation of \$50,000 from the Westinghouse Electric & Manufacturing Company to launch and support a three-year program of research in fever therapy. The Westinghouse contribution was made to aid research which may have widespread beneficial effects on the health of persons employed in industry as well as the general public. By agreement between Westinghouse and the University of Pittsburgh, the results will be made available to all medical authorities for use in improving the public health.

The study will be directed by the Department of Industrial Hygiene of the School of Medicine and affiliated hospitals. Hospitals in this group not already having Fever Therapy apparatus will install equipment within the next few months.

A \$1,000,000 fund to finance a study on diabetes in children has been donated to the Children's Hospital of Pittsburgh by Miss Emelie Renziehausen, as a memorial to her two brothers, one of whom suffered from the disease. Income from the fund, donated in the form of an irrevocable trust, is to be used to establish a Renziehausen Memorial Ward and Clinic and for perpetual research in the causes, treatment and cure of diabetes in children. Miss Renziehausen also gave to the hospital an 11-acre tract in Jefferson township to be used as a site for a home for convalescent children, to be known as the Renziehausen Memorial Home for Convalescent Children. Here, too, preference is to be given to children suffering from diabetes.

The trust agreement stipulates that the hospital, in its expenditures from the fund, is to be governed by the decisions of a committee composed of Dr. Frederick E. Kredel, Dr. Richard A. Kredel and Dr. Thomas T. Sheppard, named as an advisory committee by Miss Renziehausen. While the agreement stipulates

that diabetic research and treatment of diabetic children is to be given preference, the donor has provided that income not needed for this purpose may be used for other research and hospital services.

Work has been begun on a new state psychiatric hospital, ground for which was donated by the University of Pittsburgh. The location of this institution, adjacent to the Medical School, will greatly increase facilities for the teaching of psychiatric diseases. This hospital adds another important unit to the Pittsburgh Medical Center group of hospitals.

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*University of Tennessee
College of Medicine*

A department of preventive medicine opened October 1, with Dr. Frank L. Roberts, Trenton, in charge. The department is jointly supported by the university, the state department of health and the Tennessee Valley Authority. Dr. Roberts will be full time professor of preventive medicine and Dr. Lloyd M. Graves, health officer of Memphis, associate professor.

The College of Medicine has established three fellowships in radiology. Fellows will receive their practical instruction in the department of radiology of the John Gaston Hospital, the municipal hospital of the City of Memphis. The hospital is newly equipped with modern radiological equipment and possesses an adequate supply of radium. Remuneration of fellows will be: for the first year, maintenance and \$400; for the second year, maintenance and \$600; for the third year, maintenance and \$1200.

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Meharry Medical College

A conditional gift of \$20,000 has been tendered by Mr. Edward S. Harkness of New York City, for the establishment of a tumor clinic. The gift is conditioned on the college raising \$10,000 not later than January 1, 1938.

*University of North Carolina
School of Medicine*

Faculty Changes: Dr. Wm. deB. MacNider, Kenan Research professor of pharmacology, dean; Dr. W. Reece Berryhill, assistant dean and associate professor of medicine, Physician in Chief to the University Infirmary; Dr. James C. Andrews, professor of biological chemistry and head of the department, formerly associate professor of biological chemistry in the University of Pennsylvania; Mr. Granvil C. Kyker, instructor in biological chemistry; Dr. Harold W. Brown, professor of public health (formerly of the U.S. Public Health Service); Mr. Harold D. Goetas, assistant professor of Public Health (formerly of State College, South Dakota); Dr. Russell H. Holman, assistant professor of pathology (formerly of Columbia University, N. Y.); Mr. J. Gilmer Mebane, student research assistant in pathology; Dr. Frank N. Low and Dr. Warner S. Hammond (Cornell University), instructors in anatomy.

As a result of an appropriation from the state legislature of \$226,500, a P.W.A. grant has been allocated to the University of North Carolina, making a total of \$400,000.00, which is to be used for two purposes: first, an addition to the University Infirmary, where a charity clinic will be established for the purpose of teaching physical diagnosis, and the remainder of this amount has been set aside for the erection of a modern laboratory building for use by the Medical School.

*University of Michigan
Medical School*

A study of rheumatism will be undertaken in a new clinic to be established at the University of Michigan Hospital by the Rackham Fund. Ten thousand dollars will be available annually for several years. Dr. Cyrus C. Sturgis, professor and head of the department of internal medicine at the university, is chairman of a special committee appointed by Dr. Albert C. Furstenberg, dean

of the medical school, to establish the clinic and supervise its operation. Others are Drs. Harley A. Haynes, director of the University Hospital, and Carl E. Badgley, professor of surgery. Dr. Richard H. Freyberg will be in charge of the research on a full time basis.

♦ ♦

*Louisiana State University
School of Medicine*

Dr. Rigney D'Aunoy, professor and head of the department of pathology and secretary of the faculty, has been appointed dean, succeeding Dr. Arthur Vidrine who resigned. Dr. Vidrine will continue as professor of gynecology.

♦ ♦

*University of Illinois
College of Medicine*

Dr. LeRoy H. Sloan, associate professor of medicine, has been appointed professor of medicine.

♦ ♦

*Medical College
State of South Carolina*

Dr. Jesse R. Cockrill has been appointed a full time assistant in pharmacology. Dr. W. H. Ziegler is professor and head of the department.

♦ ♦

*Western Reserve University
School of Medicine*

A scholarship in memory of Dr. Charles Franklin Hoover, professor of medicine from 1909 to 1927, has been established for seniors by the Alumni Association.

♦ ♦

*Columbia University
College of Physicians and Surgeons*

A bequest estimated at \$200,000 was left by Mrs. Sara M. Frank, who died August 1, to found a fellowship as a memorial to herself and her husband. The income from the trust is to be used to aid any person or persons the faculty may select who show special aptitude for original work on diseases of the eye.

*Wayne University
College of Medicine*

Faculty Appointments: Dr. Arthur H. Smith, professor of physiological chemistry, and head of department; Dr. Gabriel Steiner, research professor of neurology and neuropathology; Dr. Loren W. Shaffer, professor of dermatology and syphilology; Dr. Parker Heath, professor of ophthalmology; Dr. Don M. Gudakunst, professor of preventive medicine and public health, Chairman of the Division (Deputy Commissioner of Health, City of Detroit); Dr. Carey McCord, professor of industrial hygiene (Head of Bureau of Industrial Hygiene, Department of Public Health, City of Detroit); Dr. Henry Vaughan, professor of public health administration (Commissioner of Health, City of Detroit); Dr. James M. Winfield, associate professor of surgery; Dr. James L. Wilson, associate professor of pediatrics; Dr. Richard M. Johnson, assistant professor of medicine; Dr. Arthur J. Derbyshire (in charge of neuroanatomy), assistant professor of anatomy; Dr. James M. Orten, assistant professor of physiological chemistry; Dr. William M. Witheridge, assistant professor of industrial hygiene and occupational diseases (member of Bureau of Industrial Hygiene, City of Detroit); Dr. Ralph G. Janes, instructor in histology and embryology; Dr. Arthur W. Frisch, instructor in bacteriology.

Eight teaching fellows in the basic medical sciences and four in clinical specialty department were appointed for 1937-38.

*University of Oregon
Medical School*

Dr. D. W. E. Baird, Jr., has been appointed assistant dean to succeed the late Dr. Myers.

Dr. Norman A. David, associate professor of pharmacology, University of Cincinnati, has been appointed professor and head of the department of pharmacology.

*Georgetown University
School of Medicine*

Dr. Vincent J. Dardinski, formerly professor of anatomy, has been appointed full time pathologist and director of the laboratories of the University Hospital. Dr. John R. Cavanaugh, associate clinical professor of medicine, has been appointed director of the Outpatient Department of the University Hospital; Dr. Frank S. Horvath will become assistant director and supervisor of student instruction in the Outpatient Department.

The second annual Alumni Extension course was held September 13-17, inclusive. The course included lectures on topics concerning advances of various kinds and medical movies with clinics in various branches.

♦ ♦

*George Washington University
School of Medicine*

The Annual Faculty Address at the opening session of the School of Medicine was delivered by Professor Francis Randall Hagner, executive officer of the department of urology. Doctor Hagner spoke on "The Early History of the George Washington University School of Medicine."

Faculty Appointments: Dr. Robert Custis Grubbs, instructor in physiology; Dr. Gail Lorenz Miller, instructor in biochemistry; Dr. Leland O. W. Moore, professor of military science and tactics; Dr. Edgar Deucher Griffin, clinical instructor in psychiatry; Dr. Zigmund Meyer Lebensohn, clinical instructor in neurology; Dr. Joel Norton Novick, clinical instructor in otorhinolaryngology.

♦ ♦

*Duke University
School of Medicine*

A new division of neurologic surgery has been formed. The work will be in charge of Dr. Maurice B. Woodall, formerly instructor in surgery at Johns Hopkins University. His rank at Duke will be that of assistant professor of surgery.

General News

Marriott Memorial Fund for Research in Pediatrics

Plans are being made to establish the Marriott Memorial Fund for Research in Pediatrics in honor of the late Dr. W. McKim Marriott, former dean and professor of pediatrics in Washington University School of Medicine and dean of the University of California Medical School. Anyone who wishes to make a contribution to the fund should send the remittance to any member of the committee, all teachers in the medical school of Washington University, St. Louis. The members of the committee are: Drs. Malvern B. Clopton, George R. Throop, Philip A. Shaffer, Dean, A. F. Hartmann and Park J. White.

♦ ♦

Medical Research Institute in Detroit

The United Automobile Workers has set up in Detroit a Medical Research Institute under the direction of Dr. Frederick C. Lendrum. The institute was organized for research in industrial diseases, notably lead poisoning, silicosis, chromium poisoning and industrial skin diseases. It occupies a suite of rooms in the Hoffmann Building, with three examining rooms, laboratory, x-ray room, photo dark room and consulting room, representing an investment of about \$10,000. Examinations of workers are to be made by a group of physicians who are members of the Wayne County Medical Society. Dr. Emery R. Hayhurst, Columbus, for many years consultant in industrial hygiene for the Ohio State Board of Health, directed the organization of the institute.

♦ ♦

Rosetta and Marco Fleishman Fund for Tuberculosis

Mount Sinai Hospital, New York, will receive \$916,579 as the residuary legatee under the will of the late Marco

Fleishman. The will provided that the bequest is to be known as the Rosetta and Marco Fleishman Fund and will be used for the construction and equipment of a new building or extension of the existing buildings to care for persons in the early stages of tuberculosis. In addition to this bequest, the hospital is to receive the principal of trust funds amounting to \$270,000 on the deaths of various persons for whom the trusts were created.

♦ ♦

Diabetes Research

A trust fund of a million dollars has been given to the Children's Hospital, Pittsburgh, for "perpetual research in the causes, treatment and cure of diabetes in the youth of the Pittsburgh area," by Miss Emily Renziehausen. The first income of the fund will be used to build an addition to the hospital to be known as the Renziehausen Memorial Ward and Clinic. In addition Miss Renziehausen has given an eleven acre farm as a site for a home for convalescent children. The fund agreement provides that any income not needed for work on diabetes may be devoted to other research work and hospital service.

♦ ♦

Simon Baruch Research Institute for Balneology and Hydrology

Dr. Oskar Bandisch (Ph.D.), formerly research associate at the University of Stockholm, Sweden, has been appointed director of research of this institute to be established at Saratoga Springs, N. Y., Spa.

♦ ♦

Patrick Hall Cancer Clinic

Edwin L. Patrick, of Indianapolis, has contributed \$100,000 to the Indianapolis City Hospital for the study of cancer. The clinic will be known as "Patrick Hall."

*Massachusetts Medical Center
for Rural Physicians*

A gift of \$300,000 to the Boston Dispensary has been pledged by William Bingham 2d to complete the building of the Joseph H. Pratt Diagnostic Hospital and finance its operation, according to recent announcements. The donation, supplementing a previous gift of \$400,000 made by Mr. Bingham in April, will be devoted to the creation of a medical center for the rural physicians of New England. The hospital is named in honor of Dr. Pratt, who is professor of clinical medicine at Tufts College Medical School, Boston. It was reported that Mr. Bingham is primarily interested in rural medicine and his desire is to provide a medical center at which the development of rural medicine may be planned and supervised. The report pointed out that under normal conditions a country doctor, because of his devotion to his practice and his geographic isolation, requires months or years to learn of each new development in the field of medical science. Everything will be done to make it possible for patients needing diagnosis, patients from any corner of New England and from any economic group to get the latest medical advice and for the country doctor to profit from the knowledge and experience of specialists. Physicians will take turns studying at the Pratt Hospital. Mr. Bingham will pay their expenses in Boston and arrange for "exchange doctors" to substitute for them in their home towns. In addition, all New England physicians will have the opportunity to send "the 10 per cent or so of their most puzzling cases" to the Pratt Hospital for study and diagnosis.



*Georgetown University
Brain Research Institute*

In September, the School of Medicine of Georgetown University, established an institute for the investigative study

of the brain. This institute will be known as the Georgetown University Brain Research Institute and will be under the direction of Dr. Othmar Solnitzky, professor of anatomy, with Dr. Francis J. Warner as assistant director.

A comprehensive program of neurological research work will be launched along the four following directions: (1) A complete study of the brains of vertebrates from the cyclostomes to the primates. (2) A thorough study of the development of the human brain with special regard to its morphology, nuclear masses, and fiber tracts. (3) Experimental study of the function of the various nuclei and fiber tracts of the brain by means of Marchi degeneration and retrograde cell degeneration. (4) A comprehensive study of the neuropathology of the human brain.

The Institute already possesses a large collection of animal and human brains, many of which are sectioned and stained. The instrumentarium will include, among others, the Horsley-Clarke stereotaxic instrument, the Vogt-Sartorius brain microtome, celloidin and paraffin microtomes, a specially constructed brain macrotome, cold electric cautery, moving picture camera, microphotographic camera, and dissection microscopes. The Institute will also have two full time specially trained technicians, a photographer and an artist. A large library of books, monographs and reprints, covering every phase of the projected research, is available. A modern and well equipped animal experimental laboratory is being built.

All the facilities of the Institute will be made available to all those interested in any phase of brain research. Individual desks and microscopes will be placed at the disposal of investigators.

Contributions of animal and human brains, both normal and pathological, as well as reprints of all neurological publications, will be gratefully accepted and duly accredited.

Abstracts of Current Literature

Teaching of Medical History

There seems to be a definite and growing tendency to introduce courses in Medical History into the programs of medical schools of this country. This is, on the whole, desirable, even in the face of overcrowded medical curricula. The student entering on a course of training for the profession of medicine should possess at least a working knowledge of the long process by which the status of the physician was evolved. It will, perhaps, make him more appreciative of the rules and customs of the profession by showing him how these rules and customs came into being and the reasons for them. It may give him greater confidence in facing present day problems when he realizes that many of these same problems have been faced in the past and have been successfully met either by complete solution or by compromise.

A second feature of such a course seems to be a brief history of the physician's aids and allies in his work. This includes an historical account of the hospital, the subprofessional personnel, and the high-lights concerning the development of the technics at his disposal. Obviously, this branch of the subject could be expanded indefinitely. Obviously, also, it should be confined to its earlier and general phases, for no one person is prepared, even if the time were available, to give an adequate technical account of the various branches of modern medicine. This is a function that can only be performed by physicians who are actively engaged in these several branches. But many points from the past are of more than passing interest. To know that anesthetics were used in classic times, that the older Indian hospitals followed a rather strict code of asepsis, that the Romans developed a system of military medicine, including dressing stations and base hospitals, re-

markably similar to our own, that the medical physician was acutely aware of the problem of the infectious diseases and frequently developed effective methods to meet them, that the careful study and humane treatment of the psychiatric patient did not begin with Pinel but may be traced to classic times, is valuable to the medical student and physician, if only to illustrate the stability of the base upon which the modern practice of medicine has been built.

A third phase of the subject is the part that disease has played in history, not only in times of war but in times of peace. One may trace the results of malaria and typhus fever on the classical world, the revolutions produced by the two great pandemics of plague, how yellow fever modified American colonization, the tremendous effect of smallpox on the development of Western Europe and the United States, and something of the rôle of syphilis, tuberculosis and leprosy in molding the course of history. Similarly, the less dramatic but, perhaps, equally important effects of chronic arthritis, of certain of the deficiency diseases, of the diseases of infants and of a number of the chronic ailments on the life and customs of peoples of the past is a desirable part of the physician's cultural background.

Supporting clinical medicine are the medical sciences. The story of their tremendous modern development can only be told by those who are actively engaged in their pursuit. But the teacher of medical history can at least outline one or two examples to illustrate the long path of labor, of trial and error, and the complex interlacing of the findings of students from widely divergent fields, of different nationality, race and station, and frequently of opposed points of view, that are required to make a discovery of importance in the practice of medicine, in such a process we see the

individual tends to fall in the background. Most of the tools and concepts that the medical sciences have furnished to the physician were developed by the combined, although rarely organized, efforts of workers over decades or even centuries, and were finally synthesized by a few brilliant minds.

Such a course might also well contain a short section on the relation of the practitioners of medicine to the members of other professions. A large body of knowledge and a number of techniques had their origin outside the profession and after trial were accepted as a part of the apparatus of medical practice. Thus the clinical thermometer was first developed by an astronomer, improved by an entomologist, and brought to essentially its modern form by a physicist. The hypodermic syringe and the concept of hypodermic medication seems to have been developed by a famous architect of the seventeenth century who also developed, although he did not bring into practical application, the technics of transfusion. The fundamentals of the treatment of scurvy were worked out by a captain in the British navy, apparently largely by the method of trial and error. And the forerunner of the lithotrite was devised by the rector of a rural English parish.

But if medicine is indebted to non-medical sources for a number of its advances, the debt has been more than repaid by the contributions of physicians to other arts and sciences and to practical affairs. Copernicus was an active practising physician, although we think of him primarily as the pioneer in modern cosmology. Systematic biology may be said to have its origin with Conrad von Gesner, who was town physician of Zurich, and to have reached its highest development through the work of Linnaeus, who for a time was the most successful practising physician in Stockholm. Doctor Thomas Young was a practising ophthalmologist for years, but he was

also one of the outstanding European philologists, a translator of the Rosetta Stone, and an eminent physicist. Students of economics and sociology often date their sciences from the work of Sir William Petty. But Petty was also an active practitioner, for a period professor of anatomy at Oxford, and Surgeon-in-Chief to Cromwell's army in Ireland. The list of contributions of physicians to the arts might be extended over pages. In poetry, for example, we would include Schiller, Keats, and Sir Robert Bridges, at least. And similar outstanding examples can be pointed out in the fields of general literature, music, art, and government administration.

The teacher of a course in medical history has two great pit-falls to avoid. First, he must not read history backward. Medicine, though a most distinctive profession, reflects its environment. We must not, for example, attribute the same motives, ideals, or manners to the people of England in the eighteenth century or of Italy at the height of the Renaissance that we do to persons in our environment today. A second pit-fall to avoid is the requirement that the future physician memorize long and dreary lists of dates, names and places. The medical student is a busy person whose chief endeavor is to master the sciences and arts that he will use in his profession. Medical history, being a background course, should not interfere with this main objective. A full outline giving details that the student may study when his time permits seems to me a valuable accessory to this subject.

But the chief purpose of such a course should be not the detailed study of the minutiae of the past but to paint with broad strokes how the profession of medicine came into being and how it came to assume its present position in the modern world.—SCAMMON, R. E., *Bull. Hennepin Cty. M. Soc.*, 8:95 (Sept.) 1937.

Book News

Rose & Carless Manual of Surgery.

American (15th) edition. Edited by William T. Coughlin, M.D., professor of surgery, St. Louis University School of Medicine. English edition (15th) edited by Cecil P. G. Wakeley and John B. Hunter, surgeons King's College Hospital. William Wood & Company, Baltimore. 1937.

This book has the unique distinction of having been a favorite teaching text for thirty-nine years which is a sufficient tribute to its worth. It represents the combined efforts of a well known American teacher of surgery and two equally well known British teachers.

* *

Chronic Rheumatic Disease.

Third Annual Report of the British Committee on Chronic Rheumatic Diseases of the Royal College of Physicians. Edited by Dr. C. W. Buckley. The Macmillan Company, New York. 1937. Price, \$3.50.

The object of these reports is to present an account of clinical and laboratory observation and research in England and other countries. Treatment receives special attention in this volume.

* *

The Individual Criminal:

Studies on the Psychogenetics of Crime

By Ben Karpman, M.D., Professor of Psychiatry, Howard University School of Medicine. Vol. I. Cases 1-5. Nervous and Mental Disease Monograph Series No. 59. Nervous and Mental Disease Publishing Co., Washington, D. C. 1937.

The detailed life histories of five criminals are presented and interpreted from the psychiatric standpoint. A few of the cases have as a special chapter a discussion on crime which takes as its starting point some problem relating to

the case. Most interesting reading not only for the psychiatrist but for anyone, physician or layman, who is really interested in and concerned with the prevention of crime by a proper treatment of criminals and a correct understanding of their problems.

* *

Textbook of Histology

By Harvey Ernest Jordan, A.M., Ph.D., professor of histology and embryology, University of Virginia. 7th Ed. D. Appleton-Century Company, New York. 1937.

This edition differs from the preceding one chiefly in that thirty-nine figures have been replaced by new and improved illustrations. A number of brief textual additions have also been made covering especially newly revealed functional features of periosteum, ovaries, suprarenals, thymus and pineal gland. The general principles of earlier editions are retained. This is an excellent text, hence is in great demand.

* *

Clinical Urinalysis

and Its Interpretation

By Robert A. Kilduffe, M.D., director of laboratories, Atlantic City Hospital. F. A. Davis Company, Philadelphia. 1937. Price, \$4.

This work presents in a relatively concise form the subject of urinalysis from the standpoint of the physician with particular reference to procedures feasible in the office laboratory. It is sufficiently comprehensive for all ordinary clinical purposes. Certain more useful procedures requiring skill and experience are included, such as can be carried out in a well equipped office laboratory by a trained technician. All techniques are described fully.

Textbook of Medicine

By American Authors. Edited by Dr. Russell L. Cecil, Professor of Clinical Medicine, Cornell University Medical College, and as associate editor for the diseases of the nervous system, Dr. Foster Kennedy, Professor of Neurology, Cornell University Medical College. 4th Ed. W. B. Saunders Company, Philadelphia. Price, \$9.00.

The verdict of many teachers of medicine favoring this book above all others as a textbook for the undergraduate medical student makes unnecessary any further eulogiums on Dr. Cecil's work. The list of contributors is imposing and bristles with the names of celebrities in the field of general medicine and among teachers. Something new in book writing is "a retiring age for contributors." This new departure has removed from the list many well known men of authority but it has also introduced much new blood from the younger group of university teachers. This practice gives assurance of always having a book which is an authority in this highly important field of medical practice.

* *

The Machinery of the Body

By Drs. Anton J. Carlson, Professor of Physiology, and Victor Johnson, of the Department of Physiology of the University of Chicago. University of Chicago Press, Chicago. 1937. Price, \$4.00.

A most unusual textbook, but one which should go far to make the study of physiology simpler and more enjoyable rather than to make it more difficult, and, therefore, disliked by the student. The authors, especially the senior author, have spent much time and thought in presenting a course in physiology which would make a strong appeal to the understanding and comprehension of the student. Hence, in this book, pure description and the recounting of details for their own sake are avoided. These are used as tools to make clear the principles governing the activities of the

body. The bodily mechanisms of automatic adjustment to internal and external changes are stressed. Physiology is presented as a science built upon experimentation: the experiments of the laboratory and the experiments nature performs in disease. Though the text emulates the student. Hence, in this book, pure changes are stressed. Physiology is phasizes human physiology, it brings out clearly the essential similarity of the human machine and that of other animals. The evolutionary approach is used; a consideration of the functions of organs and systems in the evolutionary past furnishes a background for the study of man himself.

Especially valuable new material is presented on the glands of internal secretion and defense against disease. Almost all illustrations are new, a number of them taken from new motion pictures on the biological sciences.

* *

External Diseases of the Eye

By Dr. Donald T. Atkinson. 2d Ed. Lea & Febiger, Philadelphia. 1937. Price, \$8.

The author has adhered to his original plan of classifying as external diseases of the eye those conditions in which a tentative diagnosis may be made without the use of the ophthalmoscope. These are the conditions which are most frequently encountered. In no part of the body can the effects of fatigue and of disease be observed more readily than in the eye and its associated structures. The therapeutic procedures are presented clearly and concisely.

The author, by means of his skill, both with the brush and with modeling wax has been able to present his impressions in a most vivid manner, which makes the illustrations quite as valuable as the text itself in clarifying his ideas. The material on the hygiene of the eyes and medical formulae and remedies make the volume as useful to the general practitioner and student as to the specialist.

Textbook of Applied Biochemistry.

By Frank Wokes, B.S., Ph.C. of the staff of the pharmacological laboratories of the College of the Pharmaceutical Society of Great Britain. William Wood & Company, Baltimore. 1937. Price, \$5.

This book is intended primarily for pharmacists and pharmaceutical students. It gives information on various applications of biochemistry in pharmacy and allied branches of public health.

* *

The Business Side of Medical Practice

By Theodore Wiprud, Lecturer in Medical Economics, Marquette University School of Medicine; Executive Secretary, The Medical Society of Milwaukee County. W. B. Saunders Company, Philadelphia. 1937. Price, \$2.50.

There is much information in this little book which every physician, and especially the beginner in practice, should have at his fingers' ends. He is told how to build a practice, manage his office, keep records, handle accounts, make investments, prepare a manuscript, get ready for public speaking, his relations with the press and with the law and many other interesting facts which will be helpful to every practitioner of medicine—and it will not take much of his time to read about these things because the book is not large, written concisely and to reveal thoughts, not to hide them.

* *

Biological and Clinical Chemistry

By Matthew Steel, Ph.D., Professor of biochemistry, Long Island College of Medicine. Lea & Febiger, Philadelphia. 1937. Price, \$8.00.

This book is unique in its comprehensiveness. Into this single volume the author has successfully blended the essentials of theoretical biological chemistry, practical biological chemistry, biophysics and quantitative clinical chemistry. He has collected material that has hitherto been so scattered that it has necessitated the purchase of three or four

volumes to obtain the data here combined in one. From a practical standpoint this synthesis is partially accomplished by having the student use himself as a clinical subject, performing on himself the same tests that are used in clinical cases. Thus he learns at first hand the influence of food on metabolism and the significance of the clinico-chemical tests. Metabolic diseases are discussed and a number of clinical specimens are analyzed. Whenever it is possible, the experiments are placed in that part of the subject matter in which they have the greatest clinical significance.

While this work is intended primarily for classroom use, it will be found equally valuable to the physician who wishes to keep pace with the advances in this rapidly expanding field.

* *

Practical Neuroanatomy

By Dr. J. H. Globus, Associate Professor of Neuroanatomy, New York University. William Wood & Company, Baltimore. 1937. Price, \$6.

It is the author's belief that he has made the study of neuroanatomy less intricate and less difficult for the medical student. This book aims to aid the student to make careful and accurate observations and to prevent overcrowding of the curriculum. With this purpose in mind, unfinished drawings, outlines, diagrams and photomicrographs are provided; detailed instructions for dissection and microscopic studies are given and a descriptive text amplified by summaries is added. Part I lays down twenty-five assignments; Part II presents résumés and discussions relative to the form, function and integration of the several divisions of the nervous system and presents many clinical examples by way of elucidation and to give a better understanding of nerve pathways. This should prove to be of great value to the student in many ways hence can be recommended highly as a textbook for the study of what is usually regarded as a difficult subject.

Materia Medica, Pharmacology, Therapeutics and Prescription Writing

By Dr. Walter A. Bastedo, New York. 4th Ed. W. B. Saunders Company, Philadelphia. 1937. Price, \$6.50.

Any textbook which survives for twenty-five years and goes into successive editions must be widely used because it is a good book for the student. Dr. Bastedo's book is just that.

* *

Chronic Rheumatic Diseases

Third Annual Report of the British Committee on Chronic Rheumatic Diseases appointed by the Royal College of Physicians. Edited by Dr. C. W. Buckley. Number Three. The Macmillan Company, New York. 1937. Price, \$3.50.

Treatment from various aspects receives special attention in this volume. Clinical and laboratory research and a survey of work done in many countries is presented to encourage and coordinate the work being done and to suggest fresh lines of investigation. Not for the undergraduate student.

* *

Atlas of Hematology

By Dr. Edwin E. Osgood, Assistant Professor of Medicine and Head of Experimental Medicine, University of Oregon Medical School, and Clarice M. Ashworth, Medical Illustrator. J. W. Stacey, Inc., San Francisco. 1937.

A beautifully illustrated work, presenting hundreds of fine drawings, in color, made to scale, of many blood cells seen in diseases of the blood; aids to the differential diagnosis of these diseases; methods of study and a most comprehensive section of references. Well worthy of commendation.

* *

Pediatric Urology

By Dr. Meredith F. Campbell, Professor of Urology, New York University College of Medicine. With a section on Bright's Disease in Infancy and Childhood, by Dr. John D. Lyttle, As-

sistant Professor of Diseases of Children, Columbia University College of Physicians and Surgeons. Vols. I and II. The Macmillan Company, New York. 1937. Price, \$15.

The aim of this work is to indicate the clinical aspects of urologic disease in infants and children. The work is most comprehensive and has value not only for the specialist but also for the general practitioner in determining when a child is in need of a thorough urologic examination toward the end that adequate treatment may be instituted. Not a book for the medical student.

* *

Fischerisms

By Howard Fabing and Ray Marr. Charles C. Thomas, Springfield, Illinois. 1937.

This is a sheaf of sundry and diverse utterances culled from the lectures of Dr. Martin H. Fischer, professor of physiology in the College of Medicine of the University of Cincinnati, privately printed for his students. Those who know Dr. Fischer—and not to know him is a distinct loss—can appreciate this little work to the fullest extent, easily imagining that they can hear him speak, for, thus does he speak. And Thomas has done his best to preserve "Fischerisms" in a fitting manner.

* *

Textbook of Diagnostic Roentgenology

By Lewis J. Friedman, Director Roentgen Ray Department, Bellevue Hospital. D. Appleton-Century Company, New York. 1937. Price, \$10.

An excellent work for the roentgenologist, for the physician who wants to know how to interpret roentgenologic films and for the student whose time permits an excursion into this most interesting field of medicine. It is complete in every way and the numerous illustrations, excellently made, will prove helpful. The bibliography is voluminous and seemingly complete.

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